FREEMAN PATTERSON'S SHADOWLIGHT

SPRING 1997

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the magazine of the Royal Ontario Museum

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NUTS ABOUT NUTS

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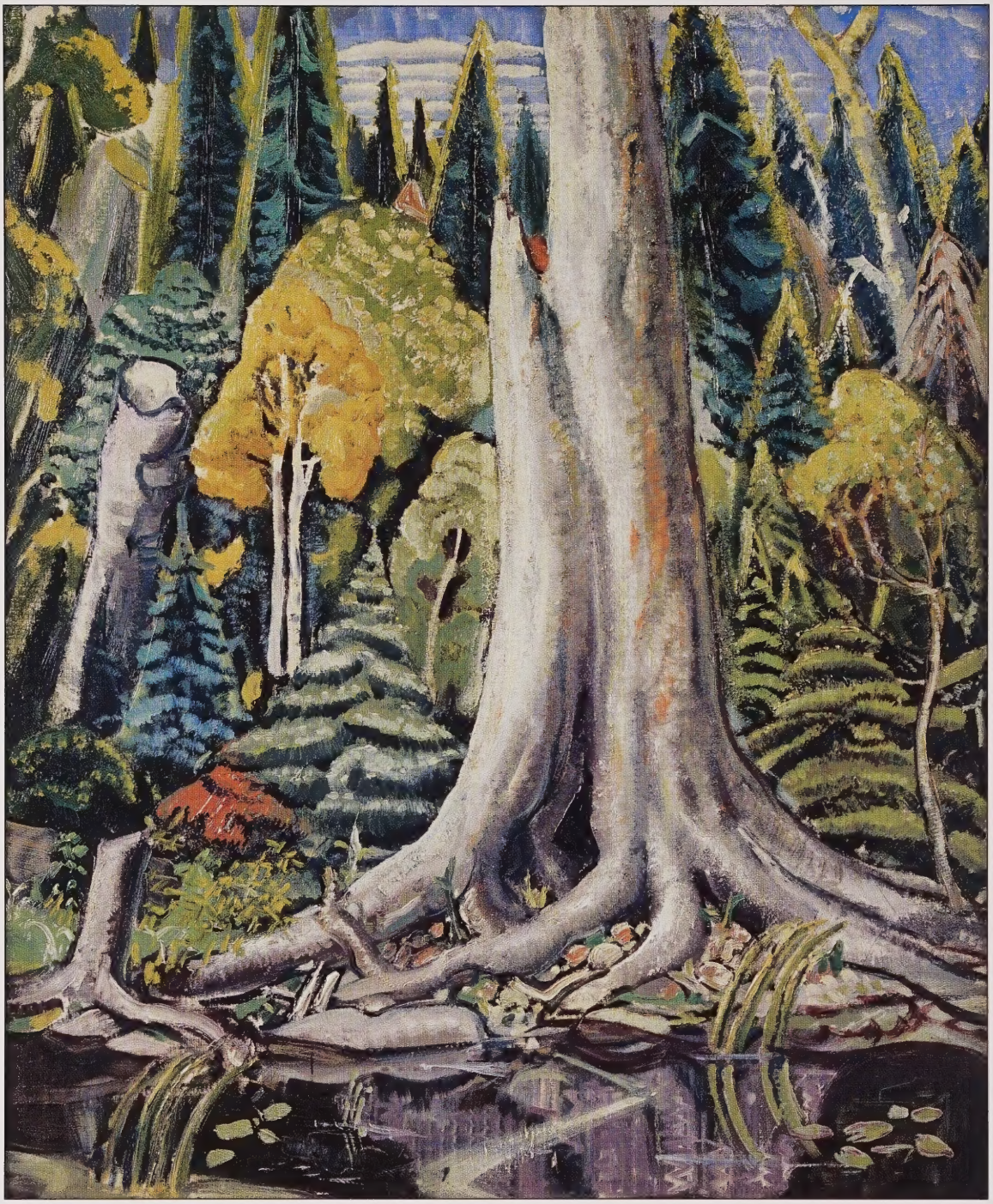

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Volume 29, Number 3, Spring 1997
Date of Issue: February 1997

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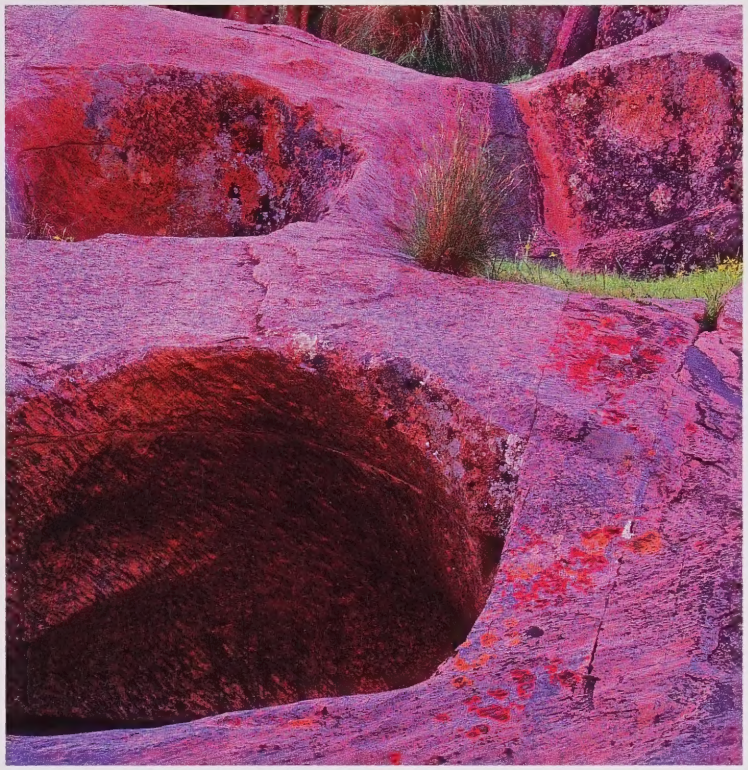
COVER
A rayon dress from Comrags, colourful rubber boots designed by Rémy Therrien for Y-eb, Acton International, and a sketch by designer Brian Bailey show three of the latest looks in contemporary Canadian fashion. Six of the fresh faces of Canadian design (clockwise from upper right): Mariouche Gagné, John Fluevog, Mimi Bizjak, Carol Prantner, Julie Lefebvre, and Rémy Therrien. To learn why Canadian fashion is all about Canadians turn to page 24. PHOTOGRAPH OF COMRAGS DRESS BY KINT QUON; KAREN LOCKHART, MODEL. PHOTOGRAPHS OF BRIAN BAILEY SKETCH, RÉMY THERRIEN BOOTS, AND THE DESIGNERS COURTESY OF THE DESIGNERS.



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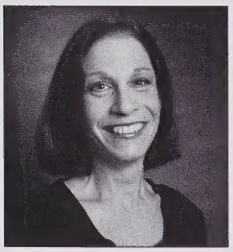
EDITOR'S NOTE



Canadians wear much more than their hearts on their sleeves. In fact we express our feelings, opinions, lifestyles, and sense of individualism on just about every garment we wear. Alexandra Palmer, the ROM's new fashion costume curator, explains in the cover story how Canadian fashion designers respond to our clothing needs and how their own personal beliefs are expressed through their products.

Canadian fashion is really a reflection of Canadian society in all its diversity. Designers are sensitive to social and environmental issues, accommodate the true and would-be athlete, and provide versatility, comfort, and flair to those running from home to the office and after-hours activities. They create everything from classics to the one-season sizzlers for women, men, and children. Several Canadian designers have succeeded on the international stage while others are barely known outside the cities where they work. You may be as surprised as I was to discover the complexity of the Canadian fashion industry and to learn just how much of what we wear is an expression of who we are.

Who we are is also a factor of who we were. While many of us are familiar with the broad facts concerning major events in Canadian history, our knowledge of details can be missing or vague. For example, how many Canadians know that a corps of black soldiers fought valiantly for Upper Canada during the War of 1812, provided security during the building of the Welland Canal, and were regrouped for the 1837 Rebellion? Journalist Steve Pitt writes about the Coloured Corps of Upper Canada and Richard Pierpoint, a Black who fought with Butler's Rangers during the American Revolution and settled in Canada after the British were defeated.

Great photographers are among the keenest observers and recorders of the people, events, and sites that make up our world. Freeman Patterson has earned an international reputation for his photographs and writings about the people and places that have interested him throughout his life—from his home in New Brunswick to the deserts of southern Africa. Among my favourite photos are those that he shot in Namaqualand. A selection of photographs of this flowering desert and the story behind them are reprinted from his recently published book *ShadowLight.*

While these three feature stories may surprise you for what they reveal about us and our world, you could be positively astonished to learn that some of the keys to understanding one of the biggest mysteries of all—evolution—may be found in the rather undistinguished and often elusive little lemming. As Mark Engstrom, a ROM curator in the Centre for Biodiversity explains, the collared lemming is a fascinating gold mine of evolutionary information. Through observation of collared lemmings bred in captivity, scientists are pinpointing the process by which species evolve. In my opinion, this is a more dramatic finding than stories of the supposed crazed suicidal behaviour of lemmings. Such stories, by the way, are largely unfounded.

For a look at Canadians present and past, to enjoy the world around us, and for answers to some of life's big questions, why not just sit down and enjoy this issue of *Rotunda.*

Sandra Shaul

SANDRA SHAUL

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This unusually large specimen of desert roses is a wonderful addition to the mineralogy collection of the Royal Ontario Museum.

PHOTOGRAPH BY BRIAN BOYLE

Desert Roses in Bloom at the ROM

THANKS TO THE GENEROUS ASSISTance of the ROM Reproductions Fund of the Royal Ontario Museum Foundation, the Museum's Department of Earth Sciences has acquired a magnificent specimen of "desert roses" weighing more than 100 kilos. This rare mineral specimen consists of approximately 300 barite crystals that have grown in bladed clusters remarkably rose-like in form, an appearance enhanced by their reddish brown colour.

Minerals form in various ways, but many people may not realize that, like life forms, minerals "grow" under the right conditions. Some form in cooling magmas deep in the Earth, others are altered from pre-existing minerals. Some are metamorphosed by tremendous heat and pressure, and others, including the desert rose, crystallize from saturated groundwater.

Underground, in aqueous solutions rich in barium and sulphate, desert roses precipitate. They form less than two metres, and typically around one metre, underground. Small quantities of the mineral have been found in California, Kansas, and Egypt, but the greatest concentration of desert roses is uncovered in Oklahoma, where conditions are right for the roses to flourish more abundantly than anywhere else in

the world. In Oklahoma's Permian Garber Sandstone, a narrow belt extending 130 kilometres (80 miles) through the central part of the state, a marine incursian occurred during the Permian period, some 220 million to 270 million years ago. This event enriched the groundwater in the barium and sulphate essential to crystal growth.

In this solution the crystals seek weathered zones of the subterranean landscape, disappearing where bedrock is encountered. The large specimens of desert roses are found embedded in a matrix of hematite and clay, which lends its distinctive colouring to, but is not actually part of, the barite crystals. Today, groundwater in the Garber Sandstone remains saturated in barium and sulphate, and the crystals continue to form.

Desert roses are commonly found as single clusters. However, in 1995, the spectacular large group of crystals now in the ROM's collection was discovered growing one metre underground in a small Oklahoma town called Noble. It took three weeks to excavate the specimen. The extreme denseness of the roses, which have zero porosity, makes them among the toughest of the sedimentary rocks. The ROM's specimen was cleaned by taking it through a car wash.

The startling beauty of rock "roses" has long fired the human imagination in Oklahoma, where the desert rose is the state mineral. According to local legend, when the Cherokees were marched from Georgia to Oklahoma across the Trail of Tears, they were so grieved by having to leave behind the cherished Cherokee rose that the gods took pity on their suffering. As their tears hit the red Oklahoma dirt, they turned to stone roses to remind the Cherokees of their home in Georgia.

LEE-ANNE JACK WITH TERRI OTTAWAY
Lee-Anne Jack is a writer in the Publications Department and Terri Ottaway is a technician in the Department of Earth Sciences, ROM

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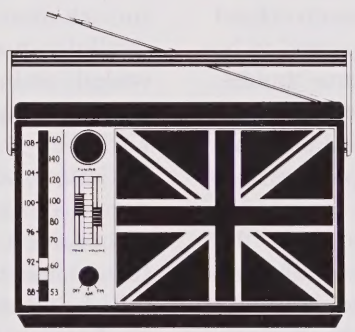

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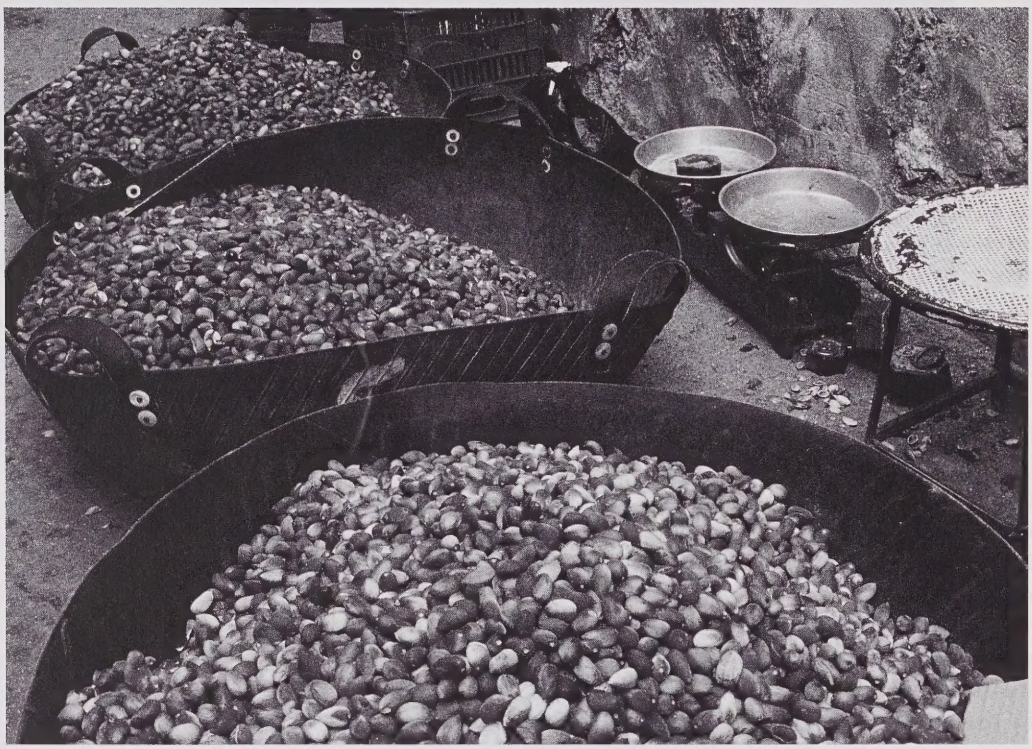


Pistachios are sold at roadside stands in Syria, like corn or peaches here in Canada.

PHOTOGRAPH BY JEREMY FERGUSON

Nuts

SYRIA MAY BE A LAND LAYERED WITH time and studded with grandiose archaeological monuments, but what brought me to a screeching halt on a journey in September was an orchard festooned with what appeared to be clusters of tiny red Christmas baubles. Ahh, the pistachio harvest. The incomparable objects are sold at roadside stands, like corn or peaches here in Canada. If you are a foreigner, it becomes impossible to walk the streets without some friendly soul thrusting a mittful of fresh pistachios in your face: Step right up, stranger, and go nuts.

The sentiment is as least as venerable as a Chinese proverb. Nuts may not rank alongside caviar and foie gras in the gastronomic pantheon, but they play a part in almost all the world's cultures. For our ancestors, nuts meant much more than a munch and crunch: they were the very stuff of sustenance, loaded with vitamins and protein, easy to gather, unlikely to spoil, a little something to tuck away for lean times. Cave dwellings in northern Iraq have revealed walnuts, chestnuts, and acorns as staples in the palaeolithic kitchen.

Contemporary foodies may dream of cashews, almonds, and macadamias, but the historic performer was the acorn, which prevailed, at least in Europe, as the nut of choice until the Middle Ages. It hasn't entirely vanished. The acorn may have been abandoned to abominable squirrels on this continent, but you can eat it, roasted and surprisingly palatable, on the Mediterranean coast of Turkey.

Nuts appear to have been a fertility symbol for the Greeks and Romans. Pistachios and almonds were the only nuts mentioned in the Old Testament. The Romans finished their meals with nuts; hence the expression "soup to nuts." First to use nuts as an inventive ingredient in cooking were the Persians, who passed it on to the Arabs and ultimately the Crusaders, who stole the idea along with the silverware as they plundered the Middle East.

In the Americas, native peoples took to nuts with a passion. South American tribes used them for breads and sauces. Closer to home, the Algonquins pounded beechnuts and acorns into flour, mixed the flour with cornmeal, and fried the mixture into cakes. The tribes of the Pacific Northwest showed a fondness for acorns, walnuts, and hickory nuts. Pine nuts had a prominent role in the diets of the American

Southwest. The Pueblos turned out a pine-nut soup flavoured with mint and coriander. The Zuni made pine-nut cakes and preserved them in ashes for hard times. Pregnant Apache women avoided them because they were believed to dangerously increase the size of the unborn baby.

In the health-obsessed 1990s, nuts have an assured future in spite of their stratospheric calorie count. Yes, they're high in fats, but not the demon saturated fats. They compensate with loads of protein and vitamins B and E. What's more, they're winningly versatile. Nut-lovers are venturing beyond the perfect snack to dress salad greens in hazelnut and walnut oils, fry with peanut oil, meld chestnuts and almonds in soups, and roast fishes or meats in crusts of crushed pistachios. A survey of recipes from modern cookbooks turns up pine nut, pecan, and peanut soups, salads scattered with peanuts and pistachios, veal with cashews, lamb in macadamia cream, and desserts in the order of espresso hazelnut cheesecake or chocolate chestnut trifle.

Individually, nuts are an interesting lot. The pecan, a member of the hickory family, is the only nut native to the United States. The Brazil nut rains down from 50-metre-high trees in the rainforests of South America, but resists all attempts at cultivation. The almond, once revered by the Romans as a token of good luck, is today the world's most popular nut.

The buttery cashew boasts triple citizenship—a native of Brazil, the West Indies, and India. Having originated in Australia, the oily macadamia was named for a man called MacAdam, and is farmed in Hawaii. The Queen's publicized favourite is a real aristocrat, the hazelnut. Cultivated by the Chinese for 4500 years, the hazelnut is designated as one of the five sacred nourishments given to mankind. Not so lofty is the groundnut or peanut, but if it is so lowly, why did the Incas choose to bury peanuts with their dead? And why is it so difficult to find a decent peanut?

For me, the pistachio remains the siren. Sink your teeth into it and there is a soft, yielding crunch. Salt sparks the palate. The flesh is green and spicy.

The pistachio came into its own about 2000 BC. The intrepid Romans picked up on its sensuality and incorporated the nut into their orgies. It had an honoured place in the Hanging Gardens of Babylon. The rampaging Mongols went misty-eyed and dubbed the pistachio "nut of Paradise." The French craved it in the Middle Ages. Canadians are learning.

My first pistachios, decades ago, came packaged under the label Zenobia. Even the name sent out waves of exoticism; Zenobia was ancient Palmyra's warrior queen, who came to a bad end when she took on the brawn of the Roman Empire. The shells were dyed a lurid red. This, I discovered at the harvest in Syria, was not to garner attention, but to emulate the husk in which the nut grows.

Iran has long been the world's leading producer. Iranian soldiers used to be issued a kilogram of pistachios apiece to sustain them in the trenches. A decree issued in Iran in the 1930s points out "Persons consuming pistachios will upkeep their youth and protect their brilliant black hair from turning white." But on this continent, Iran's clutch on the pistachio market has collapsed in the wake of the California juggernaut. The California pistachio is a designer nut: oversized, unblemished, and thankfully beginning to overcome its initial blandness.

I buy five pounds of pistachios every Christmas. Red pistachios, in a nod to nostalgia. I hoard them in an antique bubblegum machine, Scrooging them out a penny's worth at a time. After New Year's, like everyone else, I go on a diet. Like everyone else, I cheat. But I can't get away with it. The telltale red fingertips give me away every time.

The following delicious nut recipes are by Carol Clemens.

SPICED ALMONDS

Warning: An innocent-looking bowl of spiced almonds can be addictive and should be monitored for outrageous pleasure.

Ingredients

- 3 tbsp (45 ml) melted butter
- 3 tbsp (45 ml) soy sauce
- 1 tbsp (15 ml) hot pepper sauce
- 1 tsp (5 ml) garlic powder
- 4 cups (1000 ml) unblanched whole almonds

Method

Combine the butter, soy sauce, hot pepper sauce, and garlic powder in a large bowl. Add the nuts. Toss well to coat evenly. Allow the almonds to sit 30 minutes to absorb flavours. Stir occasionally. Spread the almonds on a large, rimmed baking sheet. Bake in a preheated 350°F oven about 20 minutes or until all the liquid has been absorbed and the nuts begin to turn colour. Remove from oven. Cool. Store in glass jars. Makes four cups.

INDIAN PEANUT-CHILI SALAD

I came across this piquant salad in South India. Its simplicity is deceptive. It has an alchemy all its own. The ingredients can be proportioned to suit your own palates: hot and sharp or mellow and herbaceous.

Ingredients

- 1 large bunch fresh coriander
- 1 medium-sized sweet onion, finely diced
- 1 hot green chili, seeded and diced
- 1 cup (250 ml) roasted, unsalted peanuts
- juice of 1 lime (3-4 tbsp, 45-60 ml)

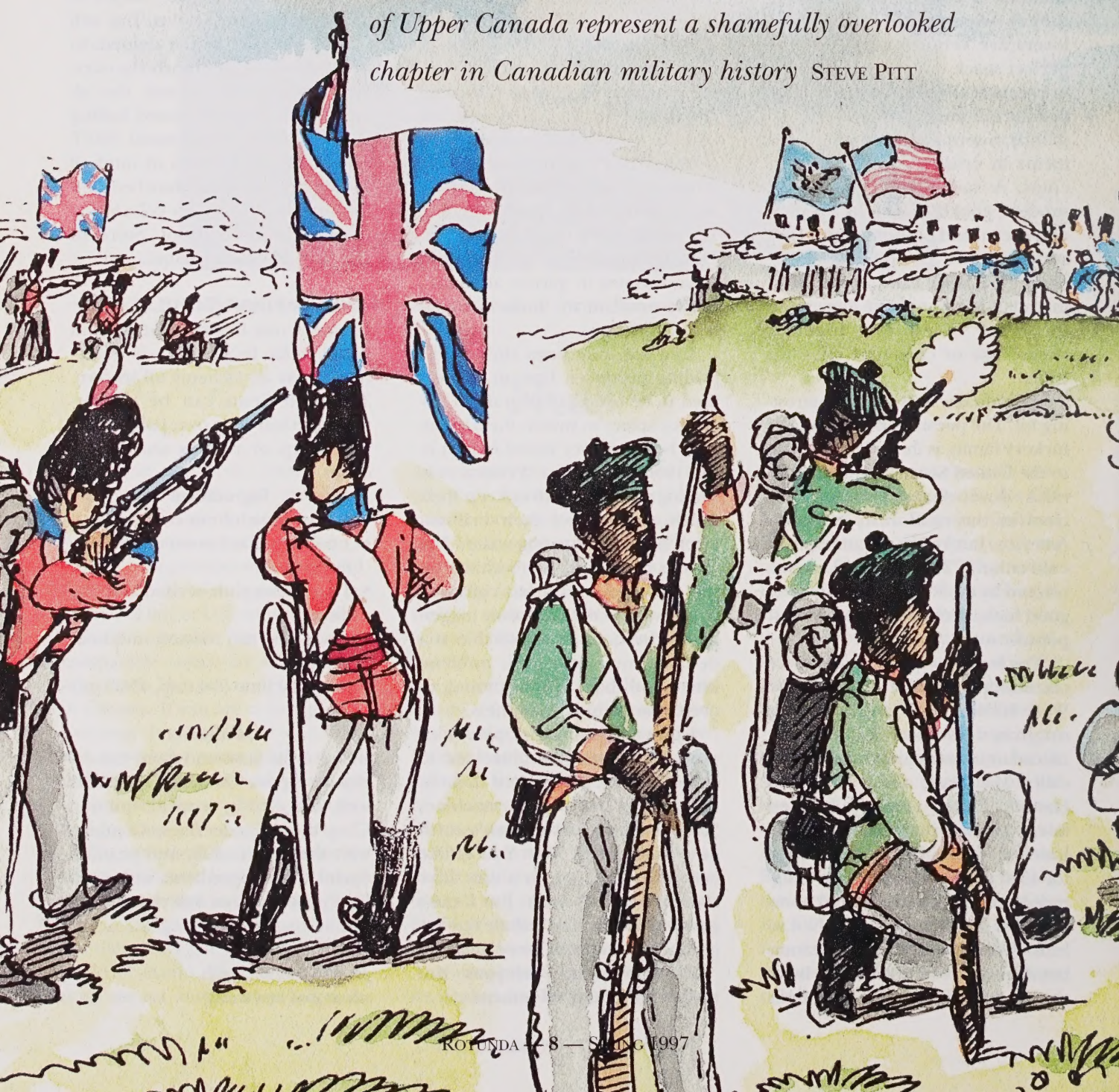
Method

Remove the root end from the coriander stems. Clean the coriander well and dry in a salad spinner. Chop the coriander finely. Combine with the onion, chili, and peanuts. Sprinkle the ingredients with fresh lime juice and toss. Salt to taste.

JEREMY FERGUSON
Jeremy Ferguson writes about food and travel

To Stand and Fight Together

Richard Pierpoint and the Coloured Corps of Upper Canada represent a shamefully overlooked chapter in Canadian military history STEVE PITT



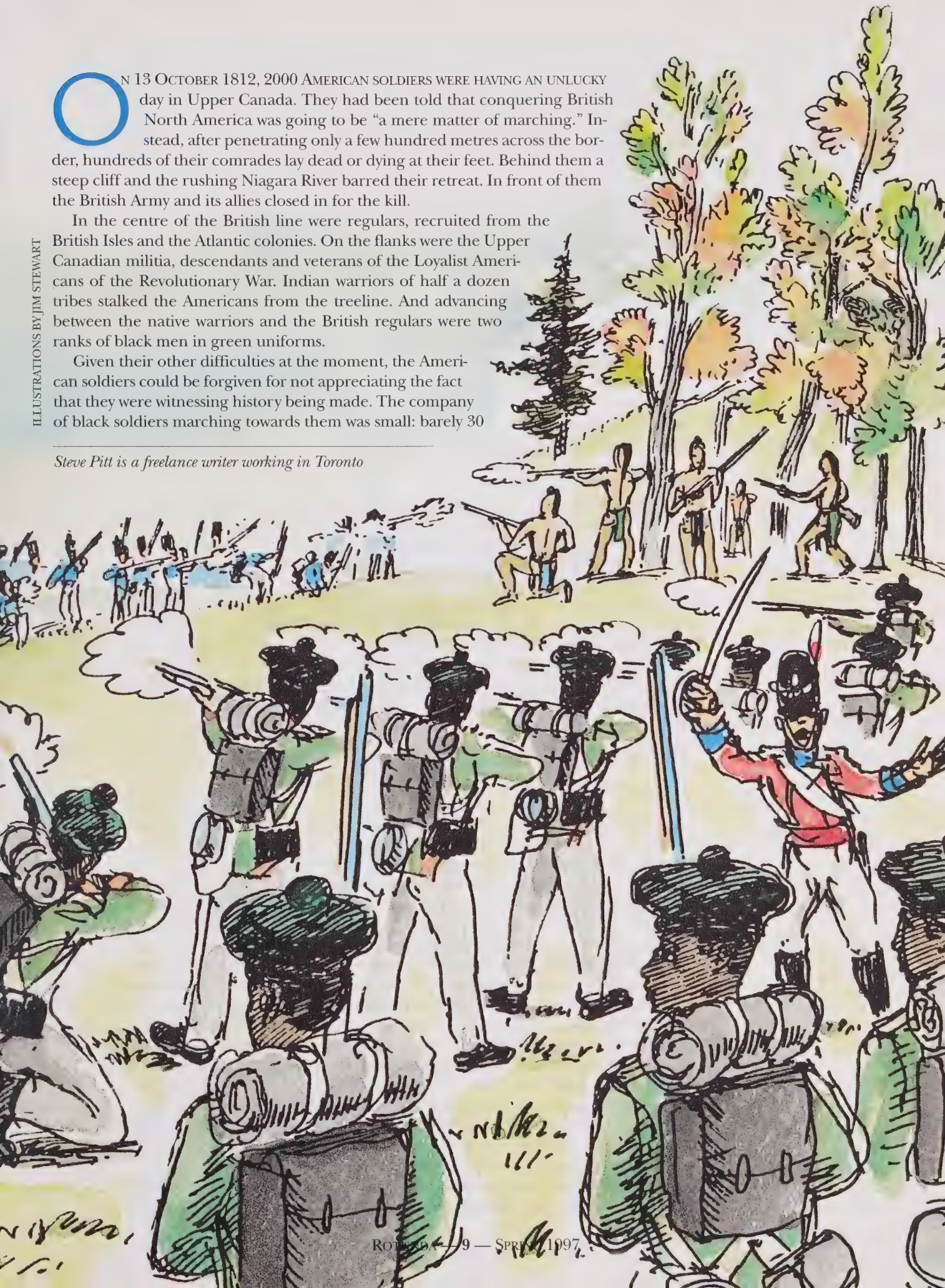
ON 13 OCTOBER 1812, 2000 AMERICAN SOLDIERS WERE HAVING AN UNLUCKY day in Upper Canada. They had been told that conquering British North America was going to be "a mere matter of marching." Instead, after penetrating only a few hundred metres across the border, hundreds of their comrades lay dead or dying at their feet. Behind them a steep cliff and the rushing Niagara River barred their retreat. In front of them the British Army and its allies closed in for the kill.

In the centre of the British line were regulars, recruited from the British Isles and the Atlantic colonies. On the flanks were the Upper Canadian militia, descendants and veterans of the Loyalist Americans of the Revolutionary War. Indian warriors of half a dozen tribes stalked the Americans from the treeline. And advancing between the native warriors and the British regulars were two ranks of black men in green uniforms.

Given their other difficulties at the moment, the American soldiers could be forgiven for not appreciating the fact that they were witnessing history being made. The company of black soldiers marching towards them was small: barely 30

ILLUSTRATIONS BY JIM STEWART

Steve Pitt is a freelance writer working in Toronto



men led by a white officer. But these few black men represented a high percentage of free black males available for service from the colony of Upper Canada. Like the tens of thousands of African-Americans who would 50 years later clamour to join Mr. Lincoln's Grand Army of the Republic, these were ex-slaves bearing arms against their former oppressors.

The regiment was called the Coloured Corps of Upper Canada or Captain Runchey's Company of Coloured Men. This small unit would fight in most of the bloodiest encounters in the Niagara Peninsula. These same men would also draw more than their fair share of tedious garrison duty and backbreaking labour details. The unit would be re-mustered during the 1837 Rebellion and see extended service in Upper Canada/Canada West until the middle of the 19th century. Yet the average Canadian knows more about Laura Secord's imaginary cow than about this unique unit of black Canadian soldiers.

The average Canadian knows more about Laura Secord's imaginary cow than about the Coloured Corps of Upper Canada, a unique unit of black Canadian soldiers that served in the War of 1812 and the 1837 Rebellion

Even before 1812, Blacks were not strangers to British military service. During the American Revolutionary War, the British offered freedom to slaves who volunteered to fight for the King, but the offer was open only to slaves owned by rebel masters. Any slave belonging to a Loyalist who attempted to "take the King's Shilling" was quickly arrested and returned to his master. Loyal slave owners, however, could donate slaves to serve in Loyalist regiments. Those Blacks who did qualify for enlistment served side by side with Loyalists, received the same pay and, if they survived the war, were given the same land grants awarded to Loyalist veterans in Upper Canada.

Richard Pierpoint, one of Upper Canada's most extraordinary pioneers, was such a black veteran. He also was the first to suggest the creation of an all-black fighting unit during the military build-up prior to the War of 1812. From a petition he wrote in his later years, it is known that Pierpoint was born around the year 1744 in the West African territory of Bondou (today an interior region of Senegal). His African name is unknown. At the age of 16, he was captured by a rival tribe and sold to British slave merchants who plied the African coast. He arrived in North America as a slave around the year 1760 and was purchased by a British American officer, (probably by the name of Pierpoint). Richard spent the next 20 years in slavery. In 1780, during the American War of Independence, Pierpoint either escaped a rebel master or was donated by a loyal one. He enlisted in Butler's Rangers, a New York Loyalist regiment headquartered at Fort Niagara near the mouth of the Niagara River at Lake Ontario.

By 1782 the British government was facing defeat and began evacuating Loyalist forces out of the rebellious American colonies. Many well-connected Loyalists were removed to Great Britain, the Caribbean, or the still-loyal colonies along the Atlantic seaboard. The officers and men of Butler's Rangers, recruited primarily from New York State, merely crossed the Niagara River to accept land grants in the newly created colony of Upper Canada.

Pierpoint and several other discharged black rangers received land grants scattered among those of their white comrades. From there Pierpoint might have disappeared from the public record were it not that he could never escape being an ex-slave in a slave-owning society.

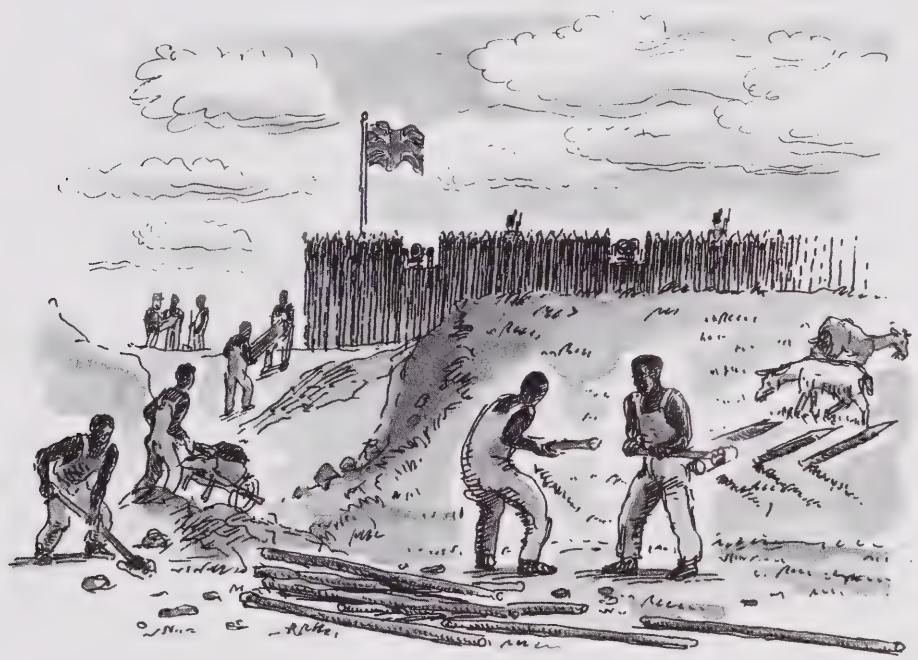
Pierpoint and his fellow free Blacks quickly discovered that their veterans' land grants were mixed blessings. Clearing and cultivating virgin forest was daunting enough to an experienced frontiersman. For ex-slaves such as Pierpoint, born in Africa and having spent most of their adult life in New England, making a success of frontier farming would have been nearly impossible. In the 50 years Pierpoint spent in Canada, he would receive three separate land grants but he never made a living from farming.

Besides inexperience, the black veterans were also greatly hampered by the fact that few of them had families to share the backbreaking labour frontier farming required. White veterans arrived in Upper Canada with their families intact. Most were experienced farmers. Many even owned slaves.

Because most black veterans were escaped slaves, any families they had were still trapped in slavery in the United States. Virtually all the black women living in late

18th-century Upper Canada were slaves owned by Loyalists. Until Simcoe's anti-slavery legislation of 1793, children born to a slave woman belonged to the slave owner. Even after Simcoe's law was passed, children born of slave women were free only after they reached the age of 25. It is not hard to understand why Pierpoint, and many free Blacks of his era, died single and childless.

The difficulties of trying to farm alone were made worse because land grants given to black veterans were dispersed randomly throughout the entire Niagara Peninsula. On 8 July 1794, Pierpoint was among 18 free Blacks petitioning Governor Simcoe and the Executive Council for "a Tract of Country to settle on, separate from the white Settlers." The petition emphatically stated that "Your Petitioners are desirous of settling adjacent to each other in order that they may be enabled to give assistance (in work) amongst them who may want it." In making such a request, the free Blacks were not asking for anything that had not already been granted to other non-English Loyalist lobby groups, including the Mohawks, Highland Scots, and Germanic Moravians. The petition was turned down with no explanation by the Executive Council.



Richard Pierpoint, one of Upper Canada's most extraordinary pioneers, was a black veteran of the American Revolutionary War. He was also the first to suggest the creation of an all-black fighting unit during the military build-up prior to the War of 1812

The issue of slave ownership in Upper Canada was definitely a contentious one at this time. Simcoe's 1793 law did not kill slavery as much as condemn it to a slow lingering death. Two decades later, while Pierpoint was again fighting for his freedom, slavery was still an established fact in Upper Canada.

In 1812, Pierpoint sent a letter to Lieutenant Governor Isaac Brock requesting permission to raise a corps of "Coloured" men, "that all may stand and fight together." Probably because Pierpoint was neither literate nor a man of property, permission was refused, but not long after, volunteer-starved British Headquarters thought better of ignoring any offer of loyal soldiers. The Coloured Corps of Upper Canada was finally authorized and raised, but command was given to Robert Runchey, tavern owner and captain in the Lincoln Militia. Runchey's reputation among his own peers was so bad that Ralph Clench, colonel of the Lincoln Militia, referred to Runchey as "a Black sheep in our Regiment, and with whom the Officers I believe would gladly part."

Rebuffed by his own government and, at 68, well past active service age, Pierpoint might understandably have chosen to sit out the war like many of his white contemporaries. Instead he enlisted as a private in a unit that would not have him as a captain.

The Coloured Corps is known to have fought at Queenston Heights, Stoney Creek, Fort George, and possibly Lundy's Lane. By 1813, when more white soldiers

were available, the Coloured Corps re-assembled as an artificer's unit, responsible for building military fortifications. It was arduous, often dangerous work, which required the men to dig trenches and erect military earthworks, sometimes under the guns of the enemy. The Coloured Corps did double duty as artificers and as garrison troops at Fort George and Fort Mississauga, both establishments within easy cannon range of American-held Fort Niagara.

The unloved Captain Runchey resigned early in 1813 and command was given to Lieutenant James Robertson, an army engineer who commanded the Provincial Corps of Artificers. Two Blacks, James Waters, from Niagara, and William Thompson, who had transferred to the Coloured Corps from the York Militia, had both risen to the rank of sergeant. In *Loyalist Mosaic*, author Joan Magee claims that Robertson (sometimes Robinson) was also black. Pierpoint remained a private throughout the war and would have turned 70 before he received his honourable discharge in 1815.

In one corner of a Toronto park stands a 150-year-old monument to the veterans of the War of 1812. Listed at the bottom of the plaque, together with the Indian Allies, is "the Coloured Corps of Upper Canada"

Casualty lists for militia units during the War of 1812 are sketchy at best. Coloured Corps documents seem to have fared even worse than average. There are no records of any Coloured Corps soldier having been killed or wounded during the entire war. One private, Anthony Hull, is recorded as having been captured. Given the length of service and the areas served, it is unlikely that even a small unit like this could have escaped unscathed.

The Coloured Corps was present during the bloody British defeat at Fort George. An American officer noted one dead black soldier on the battlefield but credited the casualty to the Glengarry Fencibles. Although Blacks are known to have served in many other Upper Canadian units it is also possible that the American officer, unfamiliar with Canadian military uniforms, mistook the Coloured Corps' militia green tunic for the nearly identical item worn by fencible units like the Glengarry regiment.

Peace in 1815 saw quick demobilization, but Coloured Corps veterans immediately found themselves being twice short-changed by the British government they had loyally served for three years. First, the government reneged on a promise of six months' severance pay. Second, those free Blacks who accepted veterans' land in Oro Township (near Lake Simcoe) received only 100 acres, half of what other veterans received. And, once again, black veterans were not allowed to settle side by side but were dispersed throughout Upper Canada.

Yet Upper Canada soon had need again for loyal soldiers. The Coloured Corps was revived during the 1837 Rebellion. Command was given to Thomas Runchey, son of the disreputable Robert Runchey. At its height, the new Coloured Corps had 141 men on its payroll. Unfortunately this proved to be too much temptation for Captain Runchey, who absconded to the United States with the company's cash box.

The final tour of duty for the Coloured Corps was in the 1840s when rival gangs of Irish navvies, fuelled by American whisky smugglers, made the construction site around the Welland Canal a virtual war zone.

After the canal was completed in 1851, the Coloured Corps was disbanded for good. Even if the 22-year gap between 1815 and 1837 is deducted, the Coloured Corps can still boast the longest active service record of any Upper Canada/Canada West militia unit.

In Toronto, at the intersection of Portland and Wellington streets, is a park that once served the garrison of Fort York as a military burial ground. In one corner stands a 150-year-old monument to the veterans of the War of 1812. The famous British regiments are listed at the top. Next listed are the locally familiar Upper Canadian militia units such as the York Rangers and the Simcoe Militia. At the bottom of the plaque, together with the Indian Allies, is "the Coloured Corps of Upper Canada." In 1995, a historical plaque commemorating the Coloured Corps was placed at the foot of the Brock Monument in Queenston, Ontario.

The Coloured Corps faired poorly at the hands of modern historians who either ignore the unit's existence or seem to go out of their way to disparage its contribution. Pierre Berton, in his two-volume history of the War of 1812, makes

no mention of Pierpoint or the Coloured Corps. Worse still, in *Soldiers of the King*, a 1995 publication, author William Gray writes of the Coloured Corps, "Curiously, of all the volunteer units, this company suffered from one of the highest rates of men deserting to the enemy." The actual number of desertions was four, from a unit that saw continuous service from Queenston Heights to Lundy's Lane.

Strangely, Mr. Gray makes no comment at all about the even higher desertion rate of the Provincial Artillery Company, an all-white Upper Canadian unit very similar in size and structure to the Coloured Corps. In another chapter, Mr. Gray remarks, "It is interesting to note that the Artificers, who would appear to have been all black men, were paid between four and five times as much as their compatriots called out on regular militia duty."

Because artificer duty was considered a dangerous, strenuous, and skill-demanding occupation, the British Army always paid premium rates to these specialized soldiers. Because there are records indicating that disbanded Coloured Corps veterans were unhappy with their final payout, it is questionable whether the men of the Coloured Corps ever received the extra money that an artificer of any race would have legitimately expected to be paid.

Richard Pierpoint's memory has fared slightly better than that of the regiment he helped to create. After his honourable discharge in 1815, Pierpoint unfortunately fell into poverty. He lived in St. Catharines where he occasionally found work as a labourer, even though he was now well into his seventies. In 1821, Pierpoint petitioned Lieutenant Governor Maitland for the fare to return to his native Bondou. The government's reaction is a classic study in bureaucratic obtuseness. In response to the pleas of a septuagenarian veteran of two wars who, according to his own petition, "finds it difficult to obtain a livelihood by his labour," the government awarded this good and faithful servant yet another 100 acres of raw Canadian forest.

With little other option except starvation, Pierpoint left the relative comfort of town life to become one of the first pioneers in the wilderness now called Garafraxa County. On 22 September 1826, he received the patent for the "east half of Lot 6, Concession 1" after clearing and fencing five acres and building a dwelling of 16 by 20 feet. He was 82.

In 1995, a historical plaque was unveiled on this land, now the site of John Black Public School in Fergus, Ontario. The plaque commemorates Pierpoint as one of the early pioneers of Garafraxa County. Richard Pierpoint is reportedly buried somewhere on his land, but the exact location of his grave is long forgotten. ♔

In 1995, a historical plaque was unveiled to commemorate Pierpoint as one of the early pioneers of Garafraxa County. Richard Pierpoint is reportedly buried somewhere on his land, but the exact location of his grave is long forgotten

Patterson's photographs capture the

SHADOWLIGHT

ShadowLight: The Photography of Freeman Patterson, *an exhibition of 45 photographs by the internationally acclaimed photographer, is on display in the Roloff Beny Gallery of the Royal Ontario Museum until 23 February 1997. This exhibition is made possible by the Suzanne and Edwin Goodman Fund of the ROM Foundation.*

For the past 16 years, Freeman Patterson has made an annual visit to Namaqualand, a semi-arid and desert region located on the Atlantic coast of northern South Africa. It is there that the world's most spectacular display of spring flowers takes place. He describes and illustrates his impressions of Namaqualand in the following excerpt from "Continent of Light," a chapter from his new book, *ShadowLight*, published by Harper Collins.

ssence of the flowering desert of Namaqualand

D HOT W

Freeman Patterson

THE AMOUNT OF TIME I HAVE SPENT IN AFRICA can now be counted in years. I have fallen under its spell, and it's everything that I feel about Africa, not what I understand, that draws me back again and again.

Every time the plane from North America begins to parallel the coast of Namibia, I look out the window and watch the slow-motion approach of the thin white line of surf that separates the cold, steel-blue wilderness of water from the hot, coppery-beige wilderness of sand, and I experience the sensation of being a visitor from space witnessing for the very first time the architectural grandeur of a strange planet.

And then, I am over Africa.

Far, far below me, erosion patterns of 10,000 centuries form dark threads in the unending carpet of sand, the wind constantly altering and shifting the designs of the spaces between the permanent stitches. For a while no tracery of roads, no marks of human habitation mar my experience of seeing the planet before the time of eyes.

The deserts of southern Africa are no less impressive from the ground. Their names resonate in the ear and in the imagination—"the sands of Kalahari," "Bushmanland," "the great Sand Sea of Namibia."

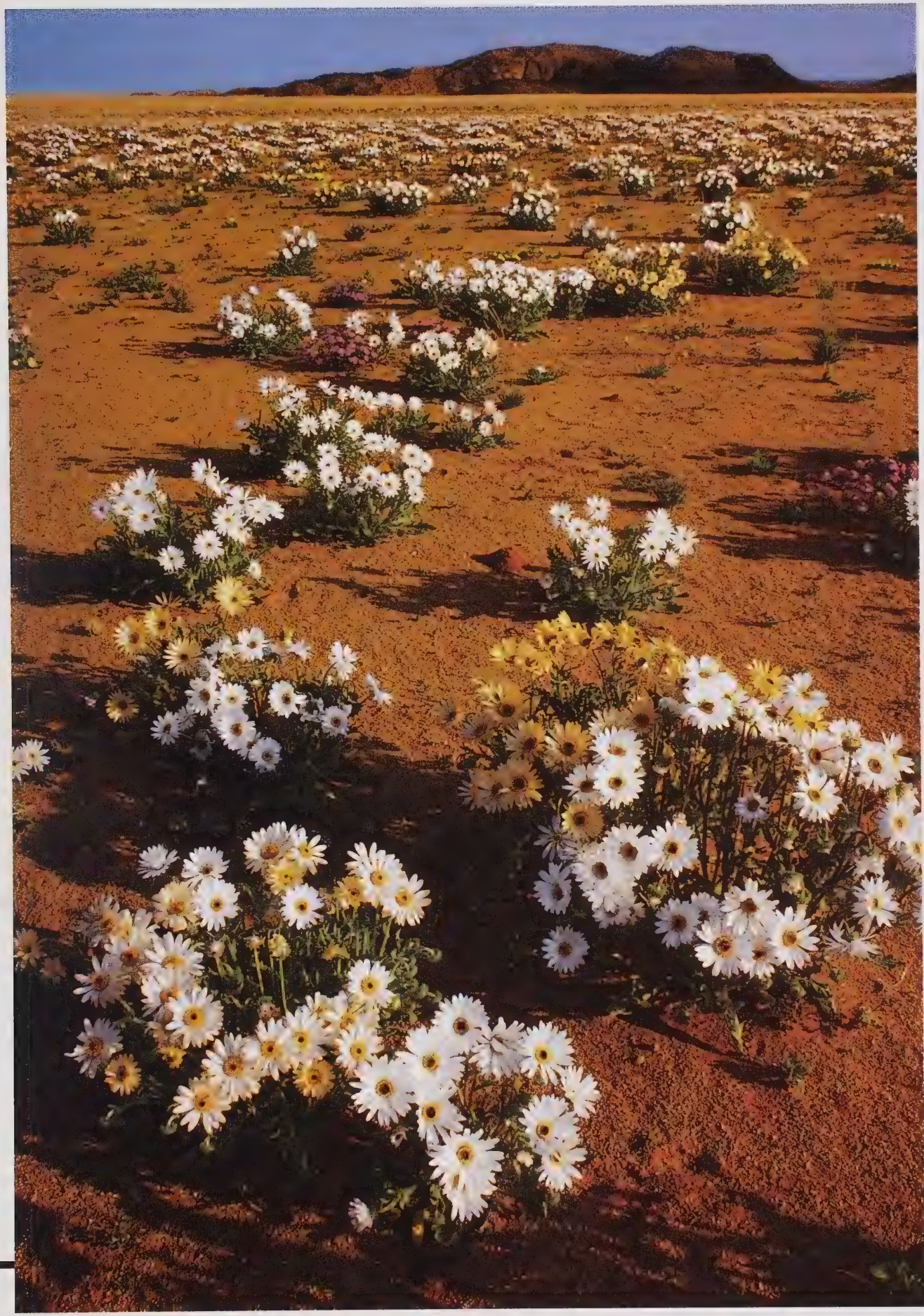
Freeman Patterson, who makes his home in Shamper's Bluff, New Brunswick, is recognized internationally as a photographer, teacher, and writer

There is a striking similarity between this scattering of white rocks on a Richtersveld plain and the spacing between clumps of daisies in the Bushmanland desert. The two deserts, both part of Namaqualand, merge and fuse along their common border, often so imperceptibly that to say you are leaving one desert and entering the other is to make a claim of certainty that no geologist would attempt to defend. However, I think of the Richtersveld as a land of mountain ranges, sculpted boulders, and rocky plains, and Bushmanland as an ocean of sand punctuated here and there by buttes and mesas. The two regions evoke quite different feelings for me.

Sunrise transforms Earth everywhere, but nowhere is the transformation more complete than in the enormous dunes of the Great Sand Sea, and nowhere else have I been so aware that the rising sun makes no sound. Silence is soul music.

However, I have another sort of music to hear, and another story to tell. It is the story of flowers—how tales of their beauty lured me to the Namib's southerly extreme, Namaqualand, which lies across the Orange River, in the northwest corner of South Africa, and how in searching for the flowers I discovered a second home. Like meeting Helen Manzer while I was studying in New York and receiving the letter from Lorraine Monk while I was teaching and photographing in Edmonton—both events that changed the course and direction of my life—what happened on my first visit to Namaqualand can be described, on the one hand, as pure chance and, on the other hand, as pure grace.

In the middle of September 1980 (late spring), a friend and I flew from Johannesburg to the town of Upington in the north-central part of South Africa. From there we headed west on horrendous dirt roads towards Namaqualand on the Atlantic coast, a semi-arid and desert region of lowveld



(typically, rolling dunes covered sparsely with low shrubs and grasses) and mountainous highveld that contains some of the planet's greatest boulders and rockscapes. Finally, I hoped, I would see "the flowers" South African friends had told me about, but I couldn't be sure. None of my friends in the big cities had been able to tell me whether or not I would be on time for the annual display and had only vague suggestions about whom to contact for information once I arrived. Since none of them had ever visited Namaqualand and they had only seen photographs of the region in spring, I suppose I could hardly have expected anything else.

We stopped the first night at the little dorp (village) of Pofadder, and I thought, both because of its remote location and because of its being named after a snake, that I had reached the end of Earth. The next day we pressed on across the Bushmanland desert towards the little mining town of Aggeneys, often forced by deep ruts in the sand or rocky soil to move slowly through what seemed like endless veld.

The following morning we continued westward across the desert towards Springbok, but soon stopped to walk across flat or rolling stretches of red sand that were dotted here and there with the skeletons of shrubs and interrupted in the distance by

Every spring (generally late July through September) the arid soil, watered by winter rains, and sometimes by snow on the mountain plateaus, comes to life. If there has been sufficient moisture, the lowveld (the dry, sandy coastal belt) blooms first, followed by the highveld (the Kamiesberge, or Kamies Mountains). Some years, sporrie (white, blue, or pale purple flax) is everywhere; other years, pink and purple mesembryanthemums are the dominant threads in the floral carpet, but every spring, orange Namaqualand daisies and ursinias sweep across the fields and up the sides of mountains. This photgraph shows a mix of daisy species on a Kamiesberg farm.

My visits to Namaqualand in springtime satisfy a deep longing. By deliberately surrounding myself with flowers, I am honouring the part of myself that recognizes the truly beautiful to be more valuable than the merely useful.

low buttes or pyramid-like mountains. I know now that some years this lonely panorama is blanketed with flowers, but that day its sheer emptiness attracted us.

Just after we resumed our journey, we encountered our first flowers—an occasional white mesembryanthemum and, in a shallow depression of cracked mud, a few brilliant yellow gazanias. Then, within a kilometre, the earth was transformed. Yellow gazanias stretched across the red sand as far as our eyes could see—a startling contrast to the inverted blue bowl of the sky. But there was none of the famous Bushmanland daisies, or the incredible tapestry of species and colours that, in the years since, have so often left me in a state of speechless wonder.

After a day of exploring and making pictures around the town of Springbok, it became evident to my friend and me that the flower season had peaked weeks earlier, so the next morning we headed south on the main highway, pausing now and then to photograph a colourful bush or clump of flowers lingering among the rocks. About noon we passed the village of Kamieskroon and turned west on a side road towards the ocean. Here and there small pools of water in ditches reflected remnants of the flower season, and I re-

As pockets of soft rock in a granite slope were eroded by swiftly flowing water, small rocks collected in the depressions. There they were swirled around by the water, like a pestle grinding in a mortar, enlarging the holes and polishing their walls. As the water levels receded over the years, some of these beautifully sculpted rocks became collecting pools for rainwater and homes for aquatic insects and frogs. Other holes, partly filled with sand and organic materials, serve as natural containers for grasses and flowering plants. Facing Page: In Namaqualand, even the granite blooms.

member finding a patch of flowers that was past its prime, but still so filled with a variety of colours that for the last two hours of daylight I crawled about on my knees or lay on my stomach, recording the mix of hues and creating colour abstracts. Then, because we had no accommodation for the night, we backtracked to Kamieskroon, having noticed a "Hotel," sign at the entrance to the village when we passed by earlier in the day. Fortunately for us, the last of the nine rooms was available.

While we were eating dinner in the little dining-room, the hotel owner-manager, Colla Swart, told the other guests . . . that she would show them some of her flower slides right after the meal. Since my friend and I were keen to see some pictures of Namaqualand in bloom and had nothing else to do, we asked if we might stay for the slide show. [Patterson and Swart became good friends and colleagues. Since 1984, Patterson has been conducting photography workshops in collaboration with her.]

• • •

"Stone and sand and sea and sky" (the title of a song well known in Canada and Namaqualand) have shaped the lives of Namaqualanders, both physically and spiritually, for so long and to such a degree that

Long after I photographed this tree and its shadow at the edge of a dune (below), I came to wonder if, in fact, I had unconsciously regarded them as symbols of myself and my shadow. Dunes like this advance slowly, but relentlessly. In the decade since I made this photograph (facing page), the dune has begun to bury the tree. Its fate is inevitable.

it is impossible to understand the people well apart from their place. Coming from a region of rain and snow; of rivers, lakes, and marshes; of forests and farms, I was lured to Namaqualand by the promise of flowers, but quickly found myself establishing powerful emotional bonds to this arid, rock-strewn land. In fact, I felt that I was coming home, even though the only desert I had ever known was the local gravel pit, created by the provincial Department of Transportation.

Namaqualand is the southern end of a vast, topographically varied desert region that stretches north along the Atlantic Ocean from South Africa, through Namibia, into Angola. In living and travelling in this great desert, where landforms often are so stripped down to essentials that they possess an archetypal character, and where even now there are relatively few human artefacts to diminish one's sense of timelessness, I have come to realize that I am journeying into the deep well of my unconscious. Returning again and again to Namaqualand and the Namib has helped me to come home to the side of myself that I had never adequately explored.

Contemporary Canadian fashion blurs the boundaries between sports, leisure, and workwear

HIGH

ALEXANDRA PALMER

A rayon dress from Comrags, colourful rubber boots designed by Rémy Therrien for Y-eb, Acton International, and a sketch by designer Brian Bailey show three of the latest looks in contemporary Canadian fashion.

PHOTOGRAPH OF COMRAGS DRESS BY KINT QUON; KAREN LOCKHART, MODEL; BRIAN BAILEY SKETCH AND RÉMY THERRIEN BOOTS COURTESY OF THE DESIGNERS

The exhibition Au Courant: Contemporary Canadian Fashion, *organized by Alexandra Palmer for the Institute of Contemporary Culture, will be on display in the Roloff Beny Gallery of the Royal Ontario Museum from 19 April 1997 until 4 January 1998. The exhibition is sponsored by Smirnoff.* Flare *magazine is the media partner.*

TECH, STREETWISE, ECO-NATURAL

Canadian fashion today clearly reflects the creativity, versatility, and...

One of the most striking characteristics of contemporary fashion is the development and use of new textiles and fibres. Synthetic fibres are produced and woven into "techno" textiles. Clothing made from such textiles is created by the use of sophisticated industrial techniques and equipment that are largely unavailable to those who sew at home. Yet, at the same time, the textile and fashion industry is also reinventing the production and use of traditional, sustainable fibres and dyes through programs with a strong ecological orientation. This love of high-tech and the traditional makes contemporary fashion a true symbol of the post-industrial era.

Alexandra Palmer is the Nora E. Vaughan Curator of Fashion Costume in the Textiles and Costumers Section of the Department of Near Eastern and Asian Civilizations

from streetstyle...

Designer Carol Prantner, a founding partner of Sugoi Cycle Clothing, is shown with the "Double Espresso" cycle shirt. The shirt, made for serious cyclists, brings together the fitness lifestyle and coffee-bar culture.

Both high-tech and natural-fibre fabrics are used to create clothing that simultaneously unites and takes into account the diverse needs of recreational, workplace, and everyday activities. The clothing may also respond to contemporary social issues by taking on a "retro" look that refers to the social values of earlier times. These international trends are adhered to by Canadian designers who actively compete within the global fashion scene.

Much of the innovation in fashion fabrics, particularly in techno fabrics, has been motivated by textile technology developed for athletic wear with its emphasis on comfort, texture, and fit. Interest in individual fitness programs has grown, and this in turn has led to the growth of Canadian technical sportswear companies. Textile technology coupled with fashion is a key component in the success of the first Canadian snowboarding company, Westbeach. The company's garments go beyond pure function and are designed for a sophisticated, urban customer who demands and understands design innovations in textiles, graphics, and style. Westbeach describes this design style as "strek," a combination of streetstyle and technology.

Sugoi Cycle Clothing takes this approach one step further by producing garments with attitude. Sugoi (a Japanese word meaning incredible) manufactures several lines, including a "No Hype" collection made from 100 per cent cotton reverse fleece, which *Bicycle Paper* described as having "a sporty look, so you won't feel like a lycra geek when you park your ride and kick back for a cup of java." Looser than pure technical gear, the clothing combines the colours and style of contemporary streetwear with the comfort of athletic fabrics. The "buddha" printed short-sleeved shirt, for example, does not look like a racing cycling jersey, but is made from Coretech, a fabric that moves moisture away from the body.

Sugoi's catalogue describes the various textiles and their properties, as well as the fashionable aspects of the company's designs. Their technical jerseys for serious riders are made from high-tech polyester fieldsensor, which "quickly absorbs perspiration from the inner layer and pushes it to the outer surface where it evaporates. This capillary action is caused by a graduated fiber structure that increases in size from the inner to outer layer. Highly functional under any exertion."

The "Double Espresso" cycle jersey, for serious cyclists, is described as designed for "full body coffee drinkers . . . from the latte kitchen at sugoi, we bring you a rich combination of blends that are sure to make juan valdez cross the border . . . jamaican rock roasted java mon, brazilian

. . . multifaceted approaches taken by innovative designers. By . . .

black from machopeachyou, toucan drink java cafe, valhalla viking, bugaboo nosebleed." The fictitious coffee names and labels not only gently mock the '90s boom in yuppie coffee bars, but also respond to an urban cyclist culture that often includes a post-ride ritual of a deluxe coffee, the espresso club serving as a replacement for the local bar.

Through research and design Sugoi has managed to produce clothing that perfectly serves a sophisticated urban, fashion-conscious cafe cyclist who is serious about the sport. Sugoi clothing makes cycling more enjoyable physically and psychologically, and represents not only an athletic activity but a lifestyle. As the company states, "We are dedicated to unite the power of the psyche with the performance of proven technology."

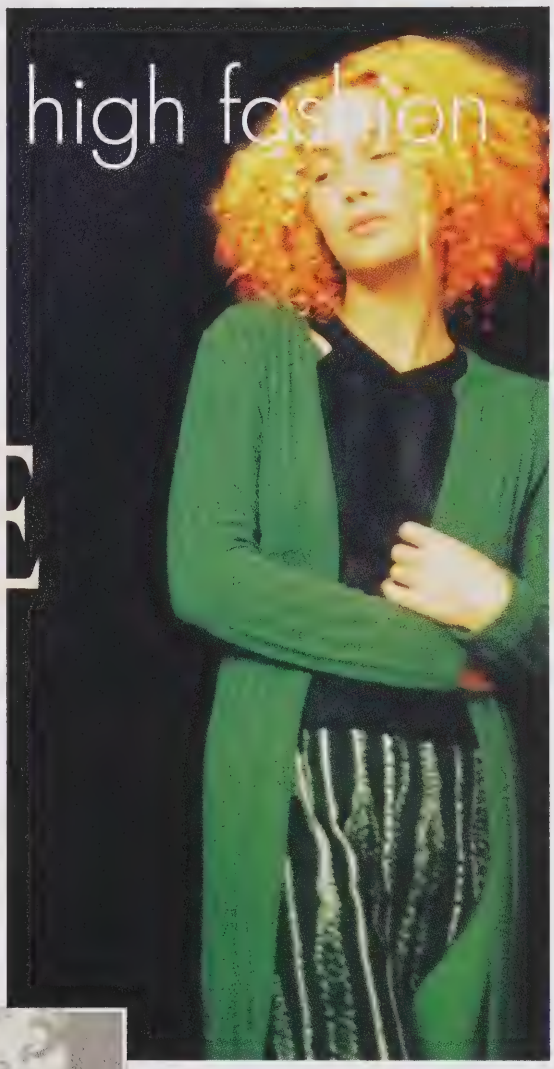
From streetstyle to high fashion, new fibres are being used to create everyday and office wear as people seek the same comfort they experience while wearing their workout gear. New fabrics not only look modern but are easy to care for as they require no ironing. Their elasticity makes it possible to create clothing that is fitted without constricting movement, resulting in greater comfort. Finally, the association with fitness, health, and a tuned body and mind serves not only to offset the stress of the contemporary workplace, but also mirrors the precision required both in sports and in a micro-technological workplace.

This crossover is seen in Mimi Bizjak's spring 1997 collection where new and traditional fabrics are incorporated to devise modern ensemble dressing. Bizjak is one of several new designers who design a line around the idea of separates rather than the more conventional and historical ensemble of matching pieces that formally compose a suit, be it with dress, skirt, or trousers. This same approach has also been taken in Canadian menswear designs by Hoax Couture, Dénommé Vincent, and D.U.B.U.C [Design Us Beautiful Urban Clothing], Mode de Vie.

One Bizjak ensemble that demonstrates this concept has a fitted, black, webbed-lace halter top made from a French fabric blend of silk and viscose that provides a texture and matte sheen suitable for day and evening wear. The top is complemented by sueded, grass-green trousers cut from a polyester and elasthane blend, thus creating a one-way stretch with a heavy weight, which causes the trouser leg to drape. Finally, contrasting with such complex blended fabrics is a traditional, cotton voile, printed apron in "brushstroke" pattern that is fastened gently around the waist with a small clasp and chain. The apron is a hybrid combination of garment

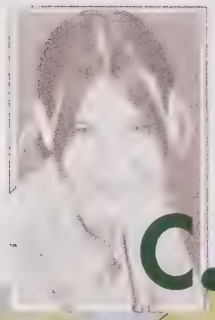
Mimi Bizjak's designs for everyday and office wear are produced using new textiles commonly associated with athletic clothing. Her fashions are elegant yet as comfortable and as easy to care for as workout gear.

. . . to high fashion



PHOTOGRAPH BY CHRIS CHAPMAN

Mimi Bizjak



C.A.L.I.C.O

ILLUSTRATION BY SEBASTIEN BORDELEAU

translating lifestyle choices...

Designer Julie Lefebvre shows her concern for the environment in her Strawberry Fields line for C.A.L.I.C.O. All the clothing is made from hemp, which grows more abundantly than cotton and absorbs fewer nutrients from the soil.

and jewellery. The ensemble is completed by a turtle-green, floor-length cardigan, the simplicity of which belies the thought and labour of its creation.

In some ways it is garments such as these that reflect not only the Canadian designers' production problems, but also their dedication and success. Bizjak began by selecting a natural textured yarn. This was then dyed to order and commercially knitted into fabric with a specified basket-weave pattern and a matched ribbing. From this knitted cloth, the sweater was cut and sewn into what appears as a classic and simple example of knitwear. In fact, the use of the natural edge of the fabric, or selvage, in the hems, and the difficulty of sewing a knit, which characteristically stretches and contracts unevenly, create problems faced and surmounted by pattern cutter and machine operator alike.

This one ensemble demonstrates the use of techno fabrics, new blends of natural and synthetic fibres, natural fabrics, and traditional printed processes, together with machine-knitting technology. When understood in this way, Bizjak's design has no clear historical precedents. It is the textiles that clearly define the ensemble as a product from the end of the 20th century.

While some Canadian designers investigate the potential of new fibres and fabrics, others, such as C.A.L.I.C.O, rethink traditional ones. C.A.L.I.C.O's Strawberry Fields line, launched in fall 1995, is made from hemp, a fibre like a luxury cotton, but which, woven as denim, is four to six times more durable and supple than cotton. The raw material, which grows like a weed, can be grown more abundantly per hectare than cotton, and absorbs fewer nutrients from the soil. Hemp is more ecologically sound, even though it is not yet more economical to produce. It is purchased from China and imported to Montreal, where it is made into clothing and then custom-dyed. Only dyes with a low impact on the environment are used. The designs are fashion forward streetwear: casual jeans, jeans-type jackets, and vests, many of which are unisex.

In the 1990s Strawberry Fields has to compete in an international jeans market dominated by huge companies such as Levi Strauss and the Gap. In order to create their own niche, partners Lefebvre and Brochu address the social realities and anxieties of the late 20th century through their design and marketing. They target the socio-cultural background of their 22- to 35-year-old clientele by tying retro associations to a modern reading. The motto: "Warning: wearing hemp is addictive," graphically realized in a late 1960s psychedelic style, not only makes reference to today's federally regulated health warn-

ing on cigarette packages but also highlights the hypocrisy of the government warnings on an internationally recognized dangerous drug. Thus, this hemp collection links the environmental and cultural activist of the 1990s with the marijuana-smoking, anti-war, social activists of the late 1960s and early 1970s. C.A.L.I.C.O also restores some of the traditional significance of denim jeans, a garment that was always associated with outsiders and non-conformists (often self-perceived), be they cowboys, teenagers, or bikers, until the designer jean phenomenon of the 1980s.

Translating lifestyle choices into an entire approach to business and design is something that other Canadian designers have also achieved. M.A.C (Makeup, Art and Cosmetics) is a widely recognized company of this type. However, newer and smaller companies, such as Harricana, North Pole, Canada, a line of recycled fur hats, bags, and mitts by Mariouche Gagné, evolved out of an equal commitment to design, company image, and environmental concerns. Gagné identifies this approach as design management, the results of which are encapsulated by her catalogue slogans: "Glamour with function," "Respect for the environment," "I believe in Mother Nature," and "Originality with comfort in mind." Her interest and support of the North stems from her personal experience as a tree planter, sailor, and backwoods enthusiast.

Gagné's business sophistication and confidence partly stem from her solid educational background and successes. While finishing her Master's degree at the Domus Academy in Milan, she won second prize in a competition sponsored by the Fur Council of Canada. Her design incorporated salvaged parts of her mother's old fur coat, which was the inspiration for her interest and investigation into recycled fur as a viable material, and the source of her business motto, "Made from your mother's old coat."

Gagné had to invent her own sourcing and production methods as there was no existing model. Her stock of fur is obtained from local mass second-hand clothing businesses, such as the Salvation Army, as well as from individuals who come to her by word of mouth to sell their old coats for cash. When the raw material has been amassed, the linings and facings are taken out of the garments, exposing the fur and skin which are then "cleaned," a process that involves tumbling the fur with wood chips. Once clean, the garments are stored in Gagné's design and production studio where they are organized according to colour and fur type and are ready for use. Each design is then cut from small pattern pieces that are positioned onto the fur, with due

In response to issues concerning the environment and the use of fur for fashion, Mariouche Gagné recycles wool and fur from used garments to make her innovative accessories for Harricana, North Pole, Canada.

...into an approach to business and design

Rémy Therrien's boots, designed for Y-eb, Acton International, are made from vulcanized natural rubber. Completely waterproof and cheerful in colour, the boots look upbeat in grey, inclement weather.

regard to the individuality of each piece. Worn or damaged areas of fur and leather are cut out or worked around. Caribou antler buttons and toggles are commissioned from Inuit carvers. The result is mass-produced hand-worked designs.

The Canadian leather footwear industry boasts several well-known shoe designers, including the internationally renowned Patrick Cox. Two footwear designers of lesser fame, Rémy Therrien and John Fluevog, produce contemporary designs that renew the use of natural rubber in footwear.

Rémy Therrien of Y-eb enlists futuristic technology for his fashionable designs and has recently revitalized rainwear shoes and boots for Acton International, a Canadian-owned rubber company founded in 1923. Therrien was approached to address the design problems that Acton was experiencing with its boots. He was very excited by the potential of working with natural rubber that is imported from Asia and processed in Acton's factory in Quebec's Eastern Townships.

The advantage of natural rubber, as opposed to synthetic, is that it does not easily crack or peel and is also lighter in weight. Different production processes also influence designs from the two kinds of rubbers. Synthetic rubber is injection-moulded while natural rubber produces a material that can be worked by hand.

The OXYD line of shoes and boots Therrien designed for Acton is produced from vulcanized rubber. Vulcanization is a process developed in the late 19th century. The pattern pieces are glued together on a last, a traditional technique associated with the making of leather shoes, and then placed in an oven. The heat fuses the individual pieces, creating waterproof seams, eliminating the need for machine stitching, and making possible designs that could not be produced in leather because of the difficult piecing and sewing involved. The resultant shiny, soft, and vibrant natural rubber boots have a modern and futuristic appearance, they make an up-beat, optimistic statement during inclement weather in grey urban settings.

Self-taught shoe designer John Fluevog's natural-rubber Angel Sole line was first introduced in 1993 in a deliberate attempt to design high-fashion shoes that were ecologically sophisticated, and did not use chemicals such as PVCs. Angels are made from the latex harvested from the hevea tree. As Fluevog's catalogue says, "They just hang a bucket on the tree and out it comes." The soles are hand-poured into an open mould and left to cure in water, a lengthy and labour-intensive process carried

... sources, they are inventing new designs that re

out for Fluevog in France. Typically Fluevogian, off-beat humour permeates his designs; the rubber soles are stamped with flying angels surrounded with words that say they are resistant to "alkali," "water," "fatigue," and "Satan." But the heavenly sole motif is more than a marketing ploy. It was conceived in deliberate opposition to the popular trend in streetstyle footwear exemplified by Doc Marten boots. This type of "tough" boot has grown in international popularity, despite and also because of its cultural associations with violent, youthful sub-cultures, such as Punks and Neo-Nazis. Fluevog does not feel that violence is "cool" and he wanted to circumvent such associations with his boots and shoes that shared a similar design vocabulary.

His latest line called "Provogs," pursues this theme while targeting the interest in athletic shoes. These shoes have a thick, brightly coloured latex sole, and the treads are embossed with the lines "Oh that my weary feet could soar to places never seen before, and float on dreaming wings of grace above this dour and earthly place."

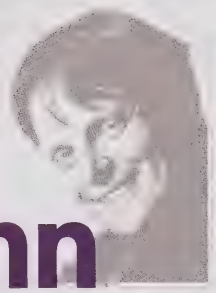
Thus the Angel Soles and Provogs are distinctive fashion-forward designs that leave peaceful, non-violent messages and are biodegradable. Flying in the face of the profitable marketing ethic of built-in obsolesence, both can be re-soled in "Retreds," the same soles that are sold individually. Fluevog creates unorthodox and avant-garde streetwear in shoes and boots that have found success nationally and internationally.

Canadian fashion today clearly reflects the creativity, versatility, and multifaceted approaches taken by innovative designers. By utilizing both new and old textiles, production techniques, and sources, they are inventing new designs that respond to our pluralistic society. ❦

John Fluevog's Angel Soles have embossed treads that leave behind imprints of such peaceful messages as "Oh that my weary feet could soar to places never seen before, and float on dreaming wings of grace above this dour and earthly place."

... that renew the use of natural rubber

pond to our pluralistic society.



John Fluevog

Sugoi

Begun in 1986 as a unisex cycle clothing company by partners Carol Prantner, designer, and David Hollands, manager, Sugoi now produces six clothing lines from highly technical to Junior Sugoi. Sugoi sells across Canada. It began exports to Japan in 1991 and to the United States in 1992. Prantner studied fashion design and technology at Kwantlen University College, Vancouver.

Carol Prantner

C.A.L.I.C.O

C.A.L.I.C.O was founded by Julie Lefebvre, a graduate of LaSalle College, Montreal, and Central St. Martin's College of Art and Design, London. Her partner is Charles Brochu, who has a BA in Economics from the University of Toronto. Their first Montreal boutique opened in spring 1993 with a line made from recyled materials. In September 1995 they introduced the Strawberry Fields hemp collection. C.A.L.I.C.O products are for sale in their two Montreal boutiques and in the eastern United States at selected retailers.

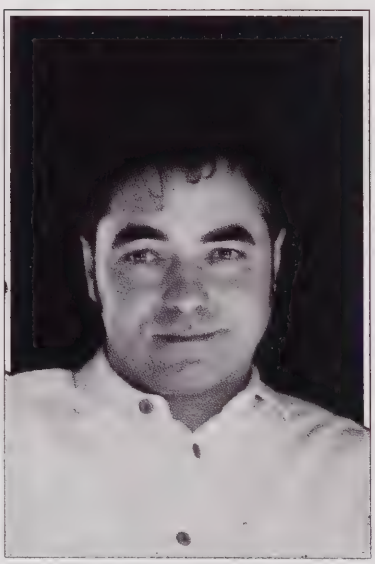
Julie Lefebvre

Rémy Therrien

OXYD by Y-EB pour / for ACTON

Therrien graduated with a diploma in 1980 from Montreal's Footwear Institute of Canada, and in 1987 received a certificate in footwear and leather-craft from the AFPIC (Association nationale pour la formation et la promotion professionnelles dans l'industrie et le commerce de la chaussure et des cuirs et peaux). He won second honourable mention at the Concours des Createurs 1987 in Paris for men's luggage made from ostrich hide. He was associate designer for Charles Jourdan in Paris, and has designed footwear for members of APDMQ (L'Association Professionnelle des Designers de Mode du Québec), for Marie Saint Pierre's New York showing, and for Acton International.

He is currently a freelance shoe designer under the label Y-eb, and teaches at the Centre de métier de cuir de Montréal.



Spring 1997 marks Mimi Bizjak's fourth collection, designed and manufactured in Toronto. She graduated from Ryerson Polytechnical University in Fashion Design, was winner of the Toronto Fashion Group's Media Choice for 1994 and The City of Toronto's Excellence in Fashion Design, New Designer, 1995. Bizjak was also a member of the Toronto Fashion Incubator. Her designs are sold in The Bay and specialty stores across Canada.

Mimi Bizjak

MIMI BIZJAK

Begun in 1994 by Mariouche Gagné, the Harricana line is designed and manufactured in Montreal. Gagné is a graduate of LaSalle College, Montreal, and the Domus Academy in Milan, and was the second-prize winner of the Fur Council of Canada 1993 design competition. Harricana is available across Canada and in the United States.

Mariouche Gagné

HARRICANA

Fluevog began as an avant-garde shoe retailer with Peter Fox at Fox & Fluevog during the 1970s. He bought out Fox in 1980. In 1988 he began to design and retail his own line, which he designs in Vancouver and manufactures in England and France. There are Fluevog retail shoe stores in Vancouver, Seattle, New York City, Toronto, and Chicago. His catalogue sales are international.

John Fluevog

JOHN FLUEVOG SHOES

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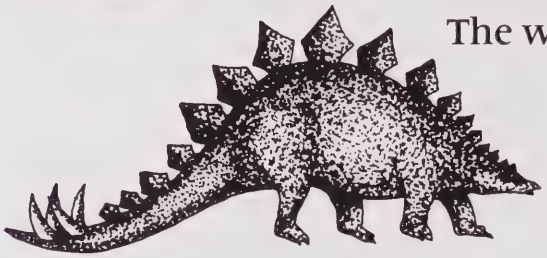

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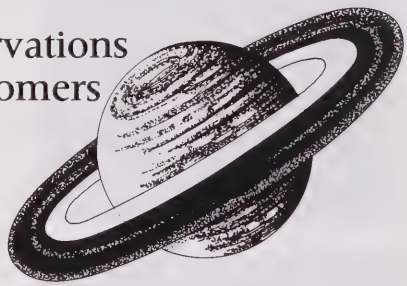

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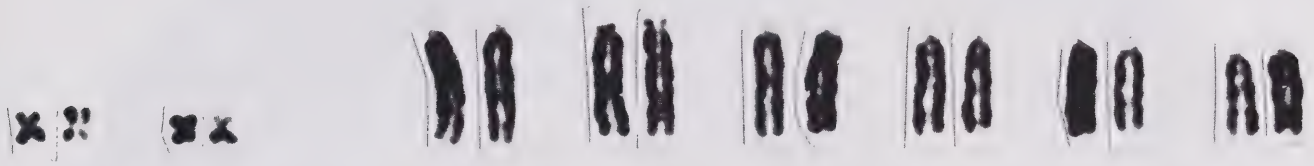
BEACONS OF EVOLUTION

Lemmings are providing clear evidence about how species originate

MARK D. ENGSTROM



PHOTOGRAPH BY BROCK FENTON

This collared lemming is from Igloolik, Northwest Territories. Lemmings from this small island comprise one of the many chromosome races found in the wide-ranging species *Dicrostonyx groenlandicus*.

IF YOU'VE SEEN ONE LEMMING YOU'VE TRULY seen them all. Yet these small rodents have captured the public's interest because of widely spread stories about lemmings committing mass suicide. Such stories are largely unfounded (see sidebar "Lemmings Over the Edge").

Nevertheless biologists are captivated by these creatures because they are outstanding subjects for evolutionary research. Their adaptations to the difficult arctic environment are remarkable, and their genetic makeup and reproductive patterns bring into question the very definition of "species."

Over the past several years, my colleagues and I at the Royal Ontario Museum have been studying the evolutionary biology of collared lemmings (*Dicrostonyx*) and the history of their recolonization of the Canadian north following the ebb and flow of continental ice sheets during the past two million years (see sidebar "Of Mice and Ice"). Collared lemmings are the rodents most highly specialized for life on

Mark Engstrom is an associate curator in the Centre for Biodiversity and Conservation Biology, Royal Ontario Museum

The Collared Lemming

Summer Coat

Winter Coat

Collared lemmings are the only rodents in North America that regularly moult to a white coat and develop digging claws on their front feet in winter. The digging claws are used for tunnelling through snow and ice.

Summer

Winter

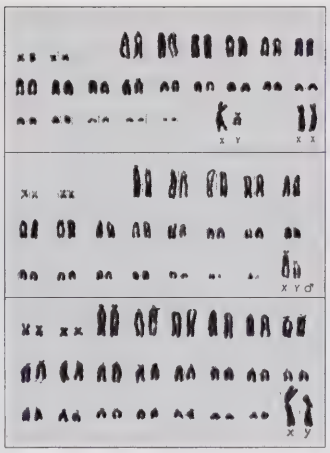
ILLUSTRATIONS BY FIONA A. REID

the arctic tundra, and with polar bear, caribou, musk ox, and arctic fox, they are among the most characteristic mammals of the far north.

Collared lemmings are found throughout the arctic reaches of North America and Asia, and they are the only rodents in the New World that regularly turn white in winter. Compact, short-eared, short-tailed animals, in summer collared lemmings are grey or reddish brown with a band of dark hair resembling a collar across their chests, and a thin, dark stripe down their backs. In winter they moult to a long, luxurious white coat, which makes them look like animated powder puffs. Their change in appearance from summer to winter is so dramatic that they are sometimes thought by native people to be two distinct species.

The Inuit call the white-coated version *kilagmiutak*, which roughly translated, means that which drops from the sky. This name refers to the belief that white lemmings arrive each year with the first winter blizzards. When working in the north, I am sometimes asked why I study only the grey and not the white species. My explanation that the two species are in fact one is dismissed with a knowing shake of the head, and such scepticism is reinforced by the occasional appearance of white and grey lemmings together in the same population just after the snow melts. Lemmings born the previous summer sometimes retain their winter coats well into the spring instead of moulting to the spring/summer coat when the snow melts. For reasons that are not fully understood, they are often smaller than animals born after them during the dark winter months.

Dicrostonyx means forked-claw, and refers to the digging claws, unique to collared lemmings, which develop in the winter and serve as ice-scrapers for

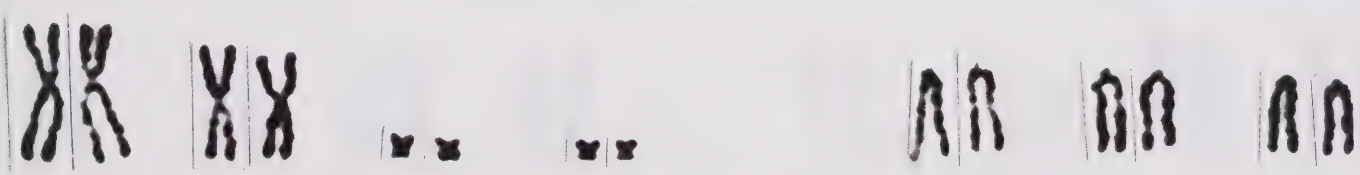


The basic chromosomal sets found in three distinct species of collared lemmings in Canada (from top to bottom): *Dicrostonyx groenlandicus, D.richardsoni,* and *D.hudsonius.* In most of the species, numbers of chromosomes vary within and amoung populations. For example, six variations of the basic chromosonal set of *D. Groenlandicus* are illustrated throughout the pages of this article.

Distribution of the Collared Lemming in Arctic North America

The arrows indicate possible routes by which the lemmings re-colonized the tundra following the most recent glacial advance 10,000 to 12,000 years ago.

- *D. hudsonius* is found in the Ungava Peninsula of northern Quebec, Labrador, and the adjacent Belcher Islands in Hudson Bay.
- *D. richardsoni* is found west of Hudson Bay.
- *D. groenlandicus* is found throughout most of arctic Canada and Alaska.



Their change of appearance from summer to winter is so dramatic that collared lemmings are sometimes thought by native people to be two distinct species

tunnelling. Beyond their physical adaptations to arctic life, collared lemmings are remarkable for the fluctuations in their numbers from year to year. Their populations commonly vary in density from fewer than one individual per hectare in low years to 50 or more per hectare in peak years. Local population increases are tracked by predators, especially arctic foxes, weasels, several species of owls, and parasitic jaegers, which depend on collared lemmings as their primary summer food source.

The number and distribution of species of collared lemmings have been the subject of considerable debate over the past 100 years and the classification of *Dicrostonyx* varies greatly among scientists. For example, in recent published summaries, the number of recognized species ranges from two in all of Asia and North America to nine in North America alone. In this respect, collared lemmings are easily the most poorly understood group of mammals in North America.

Much of the confusion stems from the discovery of extraordinary variation in the numbers of chromosomes within and among populations of collared lemmings. In North America alone, individual populations may have any number from 28 to 48 chromosomes. Most species of mammals have a uniform number of chromosomes and numeric variation often signals the presence of more than one species. However, rodents provide many of the exceptions to this general rule. Interestingly, crosses between some of the different chromosome races of collared lemmings are known to result in sterile offspring, an indication that the parents may be of separate species.

The number of chromosomes is the main physical difference between what have been classified as distinct species of collared lemmings. It has been suggested, therefore, that the new species of lemmings were produced directly by chromosome change and that this must have happened recently, because the new forms occur in areas that lay under a thick blanket of ice less than 10,000 years ago.

My interest in these animals began several years ago when I had the opportunity to study chromosomes from captured collared lemmings that were housed nearby at the University of Guelph and at the Scarborough Campus of the University of Toronto. After examining many individuals that had come from different arctic localities, including some hybrids, I discovered

What is a Lemming?

Some of the misunderstanding about the biology of collared lemmings and the misconception about their supposed migrating behaviour stems from the use of the word "lemming." Unlike those of birds, amphibians, reptiles, and butterflies, the common names of mammals are neither standardized nor codified in any universally accepted list. This oversight invariably leads to confusion when attempting to discuss mammals by their vernacular names. For example, "cougar," "mountain lion," and "puma" all refer to the same species (*Felis concolor*) and each common name is equally acceptable. Their use varies from region to region. Conversely, the common name "lemming" refers to a hodgepodge of species belonging to the subfamily of rodents that includes voles, lemmings, and muskrats.

Among these species, lemmings are an amorphous group, lumped together because of similar external appearance and distribution. They share the common characteristics of small, compact bodies, short ears, short tails, and ever-growing molars. They have a northern distribution, most occurring in or near the arctic. In North America the name "lemming" recently was restricted to three groups: bog lemmings (two species of *Synaptomys*), which occur in a variety of habitats, from the southern edge of tundra to seasonally wet areas in the central United States: collared lemmings (several species of *Dicrostonyx*); and brown lemmings (*lemmus trimucronatus*), denizens of tundra habitats.

The three groups are not each other's nearest relatives and in that respect the common name "lemming" is misleading. In particular, collared lemmings are an old group, distantly related to the others and derived from a branch near the base of the evolutionary tree leading to all voles and lemmings. At least "collared lemming" is the single common name for the species of *Dicrostonyx*. Not true. They are also called "varying lemmings" (because they turn white in winter) and "hoofed lemmings" (because they develop unusual snow claws on their front feet in winter). The time is ripe for the standardization of vernacular names for mammals.

The number and distribution of species of collared lemmings have been the subject of considerable debate over the past 100 years

that practically no two animals had the same number of chromosomes, and that classifying lemmings was a very frustrating activity. How many different "chromosome" races were there? Where did they originate geographically? And most importantly, what did the incredible chromosomal variation mean to the lemmings? Was each of these forms really a different species, and was chromosomal change the primary driving force in their initial evolution (and in that of other mammals with chromosomal variation as well)?

These questions sparked a long-term study of chromosomal evolution in collared lemmings. Little did I know how demanding it would be to study these animals in the wild. To begin the research, sampling had to be carried out across their geographic range in the Canadian tundra, which includes the many islands of the high arctic, and on the mainland, the area from the Ungava Peninsula west to Tuktoyaktuk. Compounding the difficulties common to fieldwork were the unusually high costs, the irregularity of travel, and other logistical problems of working in the North. Then I discovered that lemmings often cannot be found. Their population fluctuations occur in cycles lasting three to four years, and the cycles do not take place at the same time in each locality. A "good lemming year" in Churchill might be a poor year in western Baffin Island, and a so-so year on Ellesmere Island. And when lemming populations are at a low ebb, one would swear they were extinct. At such times finding a needle in a haystack must be simpler than finding a lone active lemming burrow in three hectares of tundra. It was necessary to revisit several localities for two to three years running, just to find the elusive beasts.

Persistence led to the discovery that across the Canadian arctic populations of collared lemmings are grouped into at least nine races, each with different numbers of chromosomes. Chromosomal changes (in all cases the fusion of two chromosomes to form one, larger chromosome) could involve either sex chromosomes (X and Y) or non-sex chromosomes, with changes to the latter being far more numerous. Does this mean that there are at least nine species of *Dicrostonyx* in Canada? The answer is no.

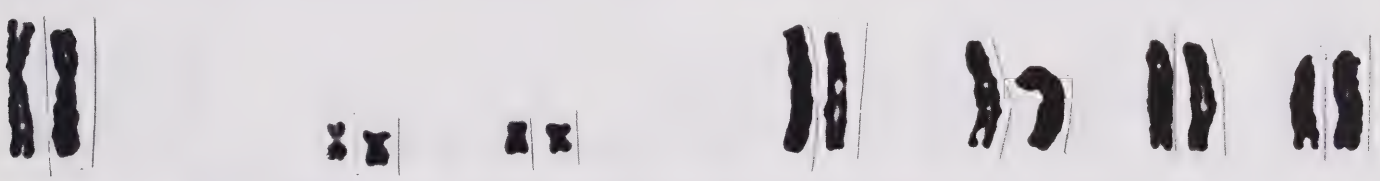
Animals representing several of the races were returned to Toronto where breeding colonies can be developed and the reproductive performance of hybrids

Of Mice and Ice

"Of Mice and Ice" was once used as the title of an article by Charles Repenning describing patterns of colonization of the arctic by lemmings following the repeated glacial advances and retreats over the past two million years. Where and how did arctic animals survive the expanding ice sheets and, when this epoch ended, how did they recolonize the high arctic?

In 1965 A. H. MacPherson of the Canadian Wildlife Service proposed the hypothesis that many species of mammals survived during periods of maximum glacial advances in remnant pockets of tundra (called refugia) that were not covered by ice. Geological studies indicate, for example, that during the most recent advance of glaciers in the Wisconsinan, which ended about 12,000 years ago, some areas in the farthest reaches of the high arctic were not buried. Among them were northern Greenland and northern Ellesmere Island in the east, Banks and Prince Patrick islands in the west, and much of Alaska. Likewise, ephemeral strips of tundra were located to the south of the leading edge of continental glaciers. Once the glaciers retreated, populations that had survived in the unglaciated areas would have been free to expand their ranges.

Collared lemmings have proved ideal subjects on which to test this hypothesis. If any mammal could survive in small remnant pockets of suitable habitats, it would be lemmings, given their body size and tremendous reproductive potential. Moreover they are now found throughout the high arctic despite the fact that most of this area was covered until recently by massive ice sheets. The lemmings are obviously capable of tremendous feats of long-distance dispersal despite their diminutive size. If they survived in isolated tundra refugia, traces of their place of origin should be imprinted in their genetic code. Our studies of rapidly evolving DNA markers from different populations across the arctic have revealed geographic patterns of genetic variation consistent with MacPherson's proposals for lemmings. Not bad, if you consider that his original ideas were based mainly on minor differences in coat colour among populations of lemmings.



Much of the confusion stems from the discovery of extraordinary variation in the numbers of chromosomes within and among populations of collared lemmings

between chromosomally different races can be monitored. One goal of this research is to find out if new species are produced directly when the kinds of chromosomal changes seen in lemmings occur.

Surprisingly, our breeding experiments demonstrate that most chromosomal changes have little or no effect on the fertility of hybrids. This is a critical test of the hypothesis that new species can arise directly through chromosomal changes because such changes should, theoretically, affect fertility. If different chromosome races really represent distinct species, any hybrids formed *between* members of these different races should be sterile. Laboratory cross-breeding showed that many different races of lemmings happily mate, raise litters, and have offspring that are just as reproductively successful as their parents. The same kinds of chromosome changes that are common within and among populations of lemmings nearly always cause complete sterility when they occur in humans and many other mammals. The one chromosomal change that does affect reproductive performance of lemmings relates to sex chromosomes. When races with different types of sex chromosomes are crossed to produce hybrid offspring, the male offspring are sterile but the females are fertile.

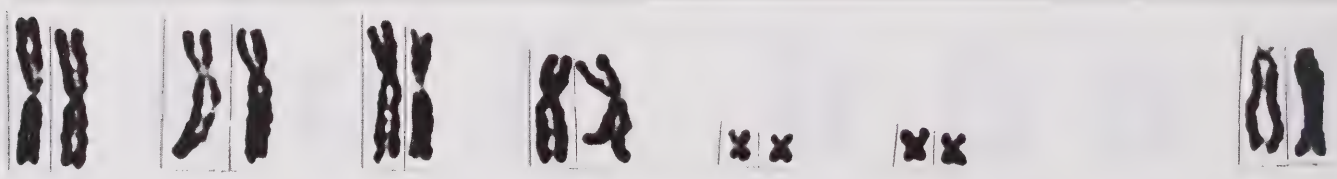
What does all this mean? How many species of collared lemmings are there in North America? Chromosome changes involving non-sex chromosomes appear to have no effect on reproductive performance. Therefore most of the different chromosome races of collared lemmings that are found in the wild are probably totally interfertile and not members of different species. However, changes involving sex chromosomes do result in some loss of reproductive compatibility among races and these "sex-chromosome races" probably represent distinct species. In the North American tundra there are three groups of *Dicrostonyx* with different sex-chromosome conformations and I believe that each represents a separate species. The Ungava collared lemming (*Dicrostonyx hudsonius*) is found in the Ungava Peninsula of northern Quebec, Labrador, and the adjacent Belcher Islands in Hudson Bay; Richardson's collared lemming (*D. richardsoni*) is found on the western edge of Hudson Bay, from Rankin Inlet to Churchill, Manitoba; and

Lemmings Over the Edge

To most people the word "lemming" conjures up images of hordes of crazed little animals, driven by starvation or some inexorable urge to hurl themselves en masse off cliffs and into swift currents of water in suicidal frenzy. This decidedly un-Darwinian behaviour has been attributed to lemmings through early scientific reports and in historical accounts by Scandinavian clergy, among others, who chronicled years of mass lemming migrations in the belief that they were a harbinger of war. The image of crazed, migrating animals has found its way into contemporary pop culture, where lemmings and their movements are portrayed in cartoons, computer games, and even music — a grunge-rock band from Toronto calls itself "The Dead Lemmings."

In fact, mass migrations of lemmings are known only in a single species, the Norwegian *Lemmus lemmus*, and the migrations can be spectacular. Norwegian lemmings, which occur in tundra throughout northern Scandinavia and Lapland, move locally both in spring and fall to preferred summer and winter habitats. In winter, this species needs the protection of substantial blankets of snow and a ready supply of mosses, their preferred winter food. In summer these sites dry out and become unsuitable, so when the snow melts the lemmings move to low wet areas such as small streams or locally flooded depressions where some of their preferred summer foods, such as grasses and sedges, are abundant.

The animals are good swimmers and in summer have been described as almost semi-aquatic. In the fall, they begin the search for suitable wintering sites. When the numbers of Norwegian lemmings are low, such habitats are usually found nearby. Occasionally, however, in periods separated by 30 to 35 years, local population levels and external conditions coincide to



Laboratory cross-breeding showed that many different races of lemmings happily mate, raise litters, and have offspring that are just as reproductively successful as their parents

the northern collared lemming (*D. groenlandicus*) is found throughout the remainder of the arctic from Greenland to Alaska.

Of what relevance is this research? A local hunters' and trappers' association in Tuktoyaktuk once refused to grant permission to work in their area because they thought it more important to work on significant animals such as caribou rather than to waste time on lemmings. But collared lemmings can provide scientists with answers to one of the most fundamental questions in evolutionary biology: how do new species arise?

In the 1970s, the initial heyday for studying chromosomal evolution, it was suggested that most new species of plants and animals are produced as the direct consequence of chromosomal changes similar to those seen in lemmings. The data produced by my colleagues and me suggest that in collared lemmings most changes in numbers of chromosomes have little effect on reproduction and interfertility (the hallmarks of new species produced in this way), but that changes involving sex chromosomes do result in infertility in some carriers (male hybrids).

We now believe that X and Y chromosomes play a dominant role in the origin of new species of lemmings and probably in many other animals as well. Among mammals it is quite common for male hybrids produced from crosses between some of these races to be sterile while the females are not. This is called Haldane's Rule. According to the rule, in mammals sex-chromosome differences between parents disrupt the production of fertile sperm in males, but they have little effect on the production of fertile eggs in females. It is not fully understood why Haldane's Rule is so often true, however, it often appears to describe the first step in the evolution of new species. Collared lemmings may provide the clues needed to understand the evolutionary mechanisms underlying the operation of Haldane's Rule and the role this process plays in the proliferation of species.

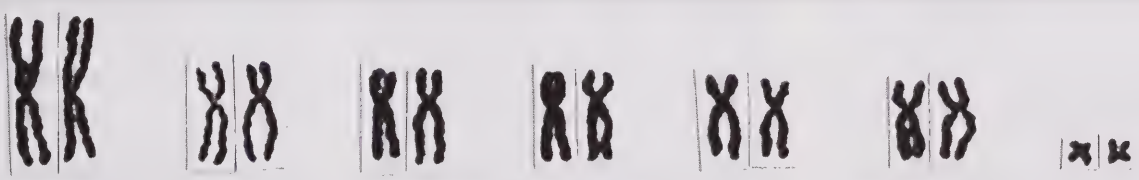
Thus to answer the question posed by the Tuktoyaktuk Hunters and Trappers Association, the unassuming collared lemming is an evolutionary gold mine and furthermore has the advantage of being much easier to breed in the laboratory than caribou.

precipitate large-scale mid-summer to fall movements. At these times, individual lemmings may travel 100 km or more and the species itself may extend its range 200 km to the south, penetrating unfavourable taiga.

These are the mass migrations of popular legend, and indeed substantial numbers of individuals, in their frantic search for suitable unoccupied wintering places, may attempt to cross swift streams (they are strong swimmers), frozen expanses, and lakes. They often lose their lives. Their behaviour also changes during the unusual circumstances. Usually quiet and easy-going, the lemmings become aggessive and vociferous, squeaking out their displeasure and attacking anything that moves, from weasels to reindeer, humans, and even cars and buses. During these rare years, their bodies will be found strewn across highways in substantial numbers, run over mainly at night as they attempt to cross roads. Population peaks are usually followed by troughs and the seeming disappearance of lemmings in subsequent years has precipitated the oft-repeated legend that lemmings originate by falling from the sky.

Although such migrations involve only Norwegian lemmings, in the 1950s the Walt Disney studio attempted to dramatize the mass migration using North American lemmings in the film *White Wilderness*. Having travelled to Barrow, Alaska, the crew found collared lemmings to be abundant, captured several, and flew them back to their field studio. The hapless lemmings were then filmed while being pushed by the crew into a stream where many drowned.

In the grand tradition of many early nature films, *White Wilderness* had both the species and the continent wrong, but it helped to perpetuate the myth that North American lemmings commonly migrate like their Scandinavian cousins. If you would like to see a real lemming migration, and at the same time celebrate the turn of the century in a novel way, the best place to go is Lapland, in northern Finland. The next migration of Norwegian lemmings is predicted to take place there sometime near the year 2000. The last migration took place in 1970.



The unassuming collared lemming is an evolutionary gold mine and furthermore has the advantage of being much easier to breed in the laboratory than caribou

The objects commonly found in your home may be damaged by poor environmental conditions.

PHOTOGRAPH BY BRIAN BOYLE

Is Climate Affecting Your Artifacts?

CLIMATE CONTROL—ASSURING CORrect levels of humidity and temperature—is one means of ensuring long-term preservation of Museum artifacts and specimens. Conservation staff monitor many of the display cases on a weekly basis as part of the ROM's environmental control program.

Environmental control is important because many materials are damaged by extremes or rapid fluctuations in the temperature and moisture content of their environment. Heated buildings become very dry in winter. They may then become very damp in the summer in many parts of the country because of hot, humid conditions. Organic materials, such as wood, textiles, skins and furs, ivory, and paper, degrade and deteriorate even at normal levels of temperature and humidity. For many materials this process is so slow that it may take many years before there is any perceptible change in condition.

High temperatures accelerate the process of deterioration especially in chemically unstable materials such as acidic paper, which turns yellow, as is especially evident in the pages of cheap paperback books, colour

photos, which fade or turn different colours, and cellulose nitrate or acetate films and negatives, which become brittle. Low temperatures, even freezing, are often employed for the preservation of materials such as unstable negatives and furs, for which the benefits of slowing the progress of deterioration outweigh the disadvantages. Other materials, such as paints and polymers, become brittle when subjected to lower temperatures.

High relative humidity encourages the growth of moulds and fungi, which stain and weaken organic and inorganic materials. The problem may arise in conditions with relative humidity as low as 60 per cent, with a real danger at levels above 75 per cent. A basement may be the ideal place to stay cool in summer, but because humidity and temperature are interlinked, that very coolness leads to higher than normal humidity, which in turn may lead to mildew growth in poorly ventilated corners and on books, and to the damp feel of carpets and upholstery. Higher humidities also encourage the chemical reactions involved in the corrosion of metals.

A less likely problem for the average collector, but something to consider for geological collections, is the fact that for certain mineral specimens, humidities above or below a particular critical value may hydrate or dehydrate the minerals, possibly leading to crystal growth on the surface. The phenomenon known as bronze disease, which may appear on archaeological metal artifacts containing copper, is another example of metal deterioration caused by humidity.

Fluctuations in relative humidity cause shrinking and swelling cycles in organic materials, setting up physical stresses that can be particularly damaging to composite artifacts. Panel paintings, for example, may suffer when the wooden substrate swells or contracts more than the paint film can accommodate, leading to cracking and flaking of the paint. Also at risk from fluctuating humidity are artifacts enclosed in such a way as to prevent movement, such as framed pictures and veneers.

For many years there have been commonly accepted guidelines for temperature and humidity levels for museum artifacts. Recently the discussion on appropriate levels and, more particularly, allowable variation, has been reopened. Values are not absolute or universally applicable. In many display cases a compromise level is set to accommodate the needs of different materials. At the ROM, the goal is to maintain relative humidity at 45 to 50 per cent, +/- 5 per cent, for organic materials, and below 35 per cent for metal objects in controlled display cases, at temperatures around 22°C.

With the resources available to the Museum, there are a number of means for controlling and buffering environmental conditions. The building's heating, ventilation, and air-conditioning system controls the overall building conditions, moderating the effects of the day-to-day fluctuations outside to create a more stable environment.

Because it is not practically possible to create complete climate stability within the building, emphasis is placed on the small-scale environments of many of the display cases, which in the newer galleries are individually controlled, either by silica gel or by specially designed climate-control machines.

Silica gel is a chemical substance with the ability to absorb and desorb moisture from the air. The small packets of granules often to be found in shoe boxes or with camera equipment are filled with silica gel, which keeps the air dry within the container. In museums, silica gel is most effective in airtight cases containing bronzes or other metals requiring a low relative humidity. The gel often absorbs moisture for several months before needing to be recharged by drying in an oven.

Silica gel can also be conditioned to a specific humidity level and used to maintain a case environment at that level, but a better option for individual cases is to use a small machine known as a micro-climate generator (MCG.) These machines and their larger counterparts, humidity control units (HCU), which can control several cases within a gallery, operate by producing air at the required humidity and pumping it into the display cases. In theory neither system is affected by fluctuations in gallery humidity. In practice, however, it is difficult to design a sufficiently airtight display case to avoid fluctuations in humidity. Even the most insignificant-looking crack between door and doorframe can have a surprising effect on the internal conditions of a case.

Such methods of climate control are outside the scope of most collectors and homeowners, but there are simpler measures that can be taken to reduce the effects of temperature and humidity on heirlooms and collectibles.

As a general rule, it is best to avoid storing or displaying works of art in basements and attics, especially in older houses, because they tend to be less well insulated than the rest of a house and subject to extremes of temperature and humidity. Basements are also at risk of flooding. To a lesser extent, avoid windows, skylights, and exterior walls, all of which can be sources of lower temperatures during the winter and higher temperatures in summer. If you should happen to be renovating, consider double- or triple-glazed windows to reduce heat transmission, and vapour barriers in the walls.

Avoid hanging pictures and display shelves over sources of heat such as fireplaces, radiators, and hot-air vents. Other heat sources to beware of include direct sunlight (which should be avoided in any case because of the risk of fading of dyes and pigments) and light fixtures in display cabinets.

To help control humidity, portable humidifiers and dehumidifiers may be used in addition to heating and air conditioners, if necessary. However, there are limitations on the humidity levels that can be achieved, especially during the winter. A colder external tempera-

ture means that the internal humidity must be lowered in order to avoid condensation on and in the walls, which may damage the fabric of the building itself. Display cases provide an extra layer of buffering between collections and the uncontrolled environment, but a word of caution is necessary. In the Museum, where the temperature is stable, the cases that are to be humidity controlled, whether by silica gel or by a positive pressure system, are almost airtight. However, an airtight case which is uncontrolled becomes its own little micro-climate in the sense that an increase in temperature lowers the internal humidity. In a private home such a case should be located in a place not subject to temperature variations.

There are several devices on the market for monitoring temperature and humidity levels, ranging from a simple cardboard humidity indicator strip, to dial hygrometers, and costly electronic meters and dataloggers that can interface with personal computers. The degree of accuracy varies, as does the price, but in general the best option for the average homeowner/collector is a hygrometer, available in many hardware stores. These can be placed within a display cabinet or wall-mounted for monitoring the general room environment. One drawback to the use of such monitors is that for best accuracy they should be recalibrated every six months or so. This is difficult to do without access to specialized equipment.

To help preserve artifacts at home or in the Museum, the climate must be kept as constant as possible to avoid damage. It is extreme fluctuations in climate that cause the most problems; the prevention or reduction of these will do a lot to preserve valued historic objects for as long as possible .

HELEN COXON AND BARBARA RICE
Helen Coxon is a conservator and Barbara Rice is assistant documentation officer in the Conservation Department, Royal Ontario Museum

ROM ANSWERS

Dear ROM Answers,
I am sending along a black-and-white photo of a piece that has been in our family for more than a century. My great-great-aunt married a Canadian diplomat who picked up many pieces when he was in France in the 1870s (or 1880s). I assume that this is one of those pieces as it was passed from my aunt to my mother in the 1920s.

If you possess furniture, silver, glass, metalwork, ceramics, textiles, or small decorative objects that may have an interesting past and have aroused your curiosity, this column is for you. Send a clear black-and-white photograph (or 35-mm colour slide) of the object against a simple background, providing dimensions, a description, any markings, or any known details of its history to: ROM Answers, c/o Rotunda Magazine, *Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, M5S 2C6. Be sure to enclose a stamped, self-addressed envelope large enough to include any photos that we must return to you with the reply.*

Neither Rotunda *nor the author nor any other person who may be consulted assumes any legal responsibility for these opinions or their ramifications. No financial appraisals will be offered. If your query is selected to be published in the column, only your initials and city will appear, in order to protect your privacy. Letters will be acknowledged as staff time comes available.*

The vase is 26.7 cm (10-1/2") tall, including the wooden base, 36.8 cm (14-1/2") in circumference at the widest point, and 16.5 cm (6-1/2") at the narrowest part of the neck. The wooden base is 30.5 cm (12") around. The top 7.6 cm (3") and the bottom 2.54 cm (1"), which extends under the wooden base, are highly glazed blue and white. The main part is flat turquoise inlay with pink, green, and blue-and-white designs of birds, leaves, and small insects, which are outlined with, I think, inlaid brass. The vase is embedded in (not attached to) a carved wooden base made small enough so that the vase can't be picked up without it, although you can jiggle the base or turn it around freely. The base seems to be made of a single piece of wood, as there are no visible joins around its carved circumference.

I would be very grateful for any information you can provide.

K.M., Halifax,
Nova Scotia

Dear Reader,

Judging from your photograph, your vase could date as early as the 1870s or 1880s. The shape and decoration suggest that it is from China or Japan. My guess is that it is from Japan because I have seen other, smaller pieces of ceramics with wide bands of the same turquoise-blue ground executed in the identical technique. These smaller pieces were fine white earthenware that is similar to other Japanese ceramics. The way in which the wisteria, chrysanthemums, and other motifs are placed on the turquoise band also corresponds more closely to Japanese design.

The wide mat turquoise band and any other areas where you see brass wire outlines are a form of cloisonné enamel. This type of enamel is so named because the patterns are created by brass wire "cloisons" or enclosures which are filled with the appropriate colour of enamel. Cloisonné enamel on copper bodies was very popular for vases made in Japan during the late 1800s and early 1900s. Many were exported to Europe, Britain, and North America. The technique was used in a smaller, more limited manner to decorate ceramics.

Usually over-glaze enamel pigments are painted directly onto the ceramic body and fired on at a lower temperature. Often brush-strokes are visible from the application. The cloisonné enamel on your vase is a thicker layer, perhaps even 1/8 inch or 3 mm thick. It also seems to have developed cracks. This may have been a desired effect and considered artistic at the time.

It is possible that a vase like this may have been acquired in France. Many of the most interesting and unusual pieces of Japanese art and Japanese products made for the Western market were exported to France between 1865 and 1900. The French had a particular love for Japanese decorative arts, and these in turn influenced French artists, artisans, and manufacturers.

I have never read anything about this particular variety of cloisonné enamel on a ceramic body. I checked with Mrs. Patty Proctor and Dr. Hugh Wylie of the ROM's Near Eastern and Asian Civilizations Department. They are specialists in Chinese and Japanese ceramics respectively, and neither has seen anything published about this type of ware, which was probably manufactured primarily for export. Over the years, I have seen about six pieces, mostly smaller items such as tea bowls. None of them was marked, so I can offer no clues to an exact date or manufacturer. The wooden stand is a fairly conventional Chinese model and a type that is still being made in a poorer quality today. It is unfortunate that it has become attached to the foot because it was meant to go the other way so that the vase could be displayed with or without the stand. Thank you for sharing your family heirloom with our readers.

Peter Kaellgren
Department of Western
Art and Culture

Maps, The Smithsonian, Going to Town, and Time

I ONCE SAW A VERY EARLY 17TH-CENTURY map of the North American coast (North America had only one coast at the time) that impressed me not only with its graphic beauty but also with its hyperbolic and ambiguous simplicity: more or less everything that was not "Canada" was "Virginia." Even much later maps often astonish us with their political, scientific, and cultural inaccuracy — and tease us with their value as works of art.

Human nature being what it is, we suppose that as maps have become more accurate they've also grown less visually attractive. But this isn't necessarily the case, as two new paperback reissues attest. For one thing, even modern maps are not always as accurate as they seem. For another, new technologies, such as satellites and computers, have produced maps that are just as appealing to the eye as any old ones, though differently so. The two books are **Maps & Civilization: Cartography in Culture and Society** by Norman J. W. Thrower (US$17.95) and **How to Lie with Maps** by Mark Monmonier ($US14.95), both published by the University of Chicago Press.

The work by Thrower, who is a professor of geography at UCLA, is an example of the special sort of book that is often the by-product of a long teaching career. First published in 1972, *Maps & Civilization* has been revised, supplemented, improved, and rethought as part of Thrower's interaction with successive generations of students. This process frequently produces books, like this one, that are little gems of clarity and organization.

If in recent years "the borderland between picture and map has. . . blurred," then this has had the unintended effect of returning us to the early history of mapping, when such distinctions were often fuzzy indeed. Printed maps were simply carrying on the tradition of drawn or painted maps, which seem to have originated more or less simultaneously among the Chinese and the Greeks, though more is known of the former's cartography than of the latter's. (The earliest printed map known to have survived was published in China about 1155 CE, or three centuries before printing began in Europe.)

The astronomer Chang Heng introduced the rectangular grid system to Chinese mapping. Chang was a contemporary of Ptolemy, who discarded the measurement of the Earth's circumference that Eratosthenes, the librarian at Alexandria, had come up with (a calculation out by only 200 miles) in favour of his own vastly more inaccurate figure, which "was not seriously challenged for fourteen centuries" in the West. Yet the Greeks were masters of what might be called philosophical cartography, as distinct from the Romans who, by comparison, were mere pragmatic surveyors. Cadastral (property) maps, for example, come to us from the Roman tradition.

In Latin, *mappa* originally meant a map on cloth, while carta was used to refer to ones on paper or parchment. This distinction had broken down by medieval times when the famous mappaemundi — maps of the world that also seem to us to be pictures of the medieval world-view — were usually on paper. Of course, it was only with the burst of exploration at the time of the Renaissance that map-making began to assume the forms still familiar to us today. In fact, the maps of this period, I would argue, are the most appealing to us now, given that they combine conformity to our own smug levels of knowledge with the maximum amount of ignorance about much of the physical world beyond Europe and the nearest parts of Asia.

Historically, maps have been either terrestrial or celestial. In fact, the two went together in several complicated ways. Those cultures with the most advanced interest in measuring time were also perforce the ones with the best-developed cartography. The Egyptians are one example. Another is the Aztecs (who, the first Spanish conquistadors learned, had highly evolved maps and calendars). An excellent new book on celestial maps, full of large colour reproductions from various cultures and periods, is **The Mapping of the Heavens** (Firefly, $42) by Peter Whitfield, a British map-publisher. A complementary new book about terrestrial maps is **Images of the World: The Atlas Through History** by two Library of Congress curators, John A. Wolter and Ronald E. Grim. It is published by McGraw-Hill Ryerson at the rather unusual price of $100.95.

Which brings us back to Mark Monmonier's **How to Lie with Maps**, also a standard work in a newly revised edition, like Thrower's, but one of a different genre entirely. This book-length illustrated essay is a debunking work, a sceptic's guide, one that might just as easily have been en-

titled How Not to Let Maps Take You for a Ride. The author, who teaches geography at Syracuse University and has written widely on cartography, crosses many disciplinary lines to show that maps are simply statistics in planar, visual form, often intended to deceive and even more often doing so unwittingly. His sections on maps as propaganda are keyed to the present and are very up-to-date in terms of the technological understanding they impart. But they conjure up some of the sense of wonderment I got when looking at the 400-year-old map of our east coast: maps cover up as much as they reveal and are as much works of graphic design as of scientific purity. Monmonier is a delight.

Two other new books I've seen on the subject deal with two specific types of map, the one obsolete, the other still common. The first is **Rural Images: Estate Maps in the Old and New Worlds** by David Buisseret (University of Chicago Press, $US55), about the maps once commissioned by farmers and planters to help them use their lands to maximum efficiency. The other is about the sort of maps most of us are most familiar with: the folding (often self-entangling) highway maps available at gasoline stations. **Hitting the Road: The Art of the American Road Map** (Raincoast, $27.95 paper) by Douglas A. Yorke Jr., John Margolies, and Eric Baker traces the subject back to the early days of motoring but will cause a pang of nostalgia in anyone who's ever driven long distances. Every oil company you can think of is represented.

HERE ARE SOME OTHER BOOKS OF interest to *Rotunda* readers.

• In 1829, a wealthy English scientist named James Smithson tactfully left his fortune to the United States government for the creation of an institution for the "increase and diffusion of knowledge." It took a few years—until 1846—for the Congress to pass the enabling legislation for what became the Smithsonian Institution, the world-famous museum (or rather, group of 16 museums) that Americans like to refer to (a little pointedly, I've always thought) as "the nation's attic." On this the occasion of its 150th birthday, the Smithsonian has been the subject of a number of new books, including a totally fresh **Official Guide to the Smithsonian** (Scholarly Book Services, $US7.95), an essential paperback.

Another is **America's Smithsonian** (Scholarly Book Services, US$45 cloth, US$24.95 paper), the catalogue of an exhibition of the same name—"the largest exhibition ever put on the road"—that has been touring a dozen American cities, to generally poor reviews, as the show (as well as the book) points up all the Smithsonian's weaknesses as well as its great strength.

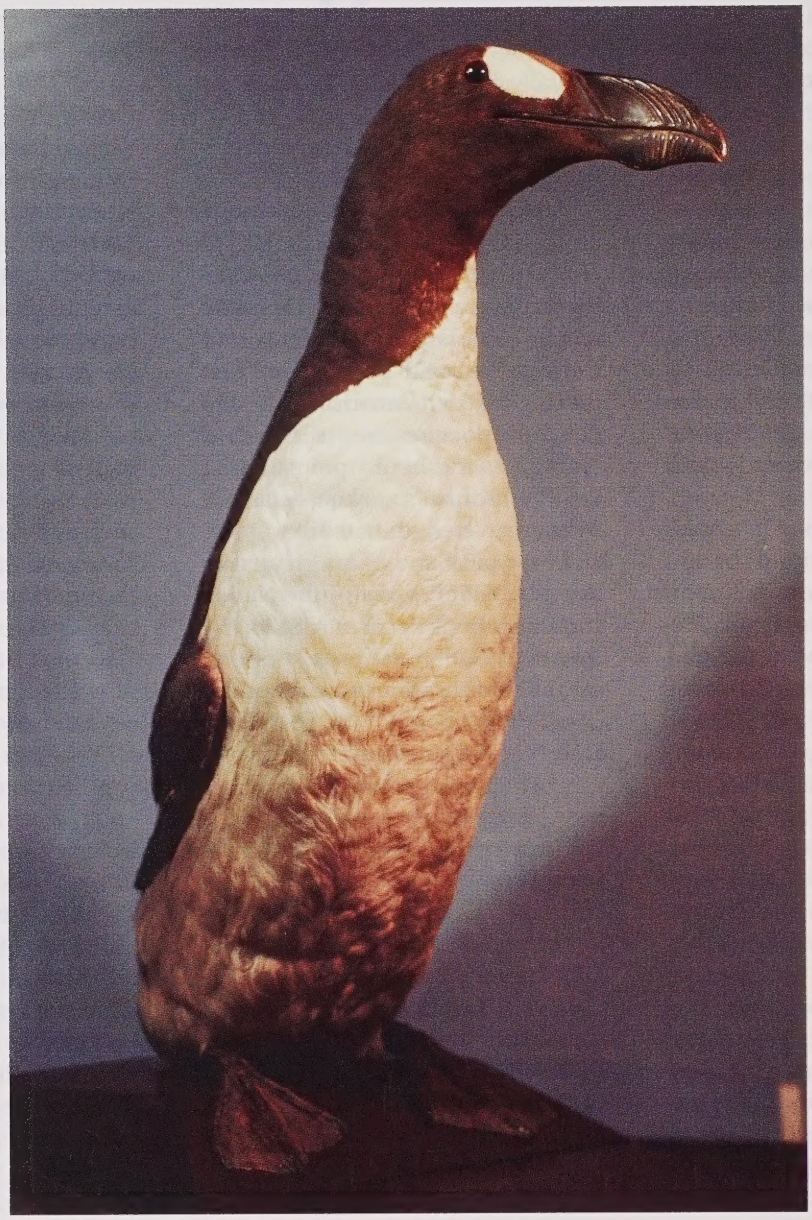
Less typical and of far greater interest is **1845: Portrait of the Nation** (Scholarly Book Services, US$24.95), the sesquicentennial project of one of the Smithsonian's component parts, the National Portrait Gallery. It shows clearly that the 1840s were a time when mass production was being turned loose on culture, when the prospect of civil war was bubbling just below the surface of the national life, and when patriotism was being institutionalized and rigidly enforced through ornate oratory, Currier & Ives prints, the California gold rush, the abolitionist movement, the sewing machine, and the dispute with Britain over the boundary of western Canada.

None of these is a book on American museology. But there is another new book — Mike Wallace's **Mickey Mouse History and Other Essays on American Memory** (Temple University Press, US$54 cloth, US$18.95 paper) that does indeed get at the heart of heritage issues in its lucid and timely discussions of theme parks, corporate sponsorship of historical displays, and the role of partisanship in the choice of what the public is allowed to imbibe as "history." One of Wallace's most useful case studies, in fact, is the Smithsonian.

The last really important and informative book on the unique properties of Ontario's rural and small-town architecture was probably Anthony Adamson's **The Gaiety of Gables**, published in 1974. Now comes Katherine Ashenburg's **Going to Town: Architectural Walking Tours in Southern Ontario** (Macfarlane Walter & Ross, $23.95 paper), a clearly thought-out and logically arranged handbook covering 10 communities, from Merrickville (population 1000) to Stratford (27,000). If Stratford (or Niagara-on-the-Lake or Brockville) is already familiar ground, this to the same extent can hardly be said of, say, Paris, Ontario. In any case, while all these communities are recognized for their remarkably high percentage of heritage structures both public and private, none is usually studied with such apparent love and affection by someone actually trained in architectural history, as was Ashenburg, the "Social Studies" editor of the *Globe and Mail*. Unlike most books of "walking tours" this one can actually be carried in the field with ease. Or you can do your walking (and your learning) sitting down.

"The normal adult never bothers his head about spacetime problems," Albert Einstein is quoted as saying in **The Quotable Einstein** (Princeton University Press, US$16.95) compiled by Alice Calaprice. "I, on the contrary, developed so slowly that I only began to wonder about space and time when I was already grown up. In consequence, I probed deeper into the problem than an ordinary child would have done." In fact, ever since Einstein's day, there has been a new interest in the history of the concept of time, an area that attracted many literary people in particular. Perhaps the most unfairly neglected of all is J. B. Priestley's *Man and Time*. In Canada, the late George Woodcock's stock anthology piece is an essay on "The Tyranny of the Clock," which argues that the invention and perfection of timekeeping devices restricted freedom for the individual.

DOUGLAS FETHERLING
Douglas Fetherling is book review editor of Rotunda



The Once Great Auk

THIS RARE SPECIMEN OF A GREAT AUK IN THE ORNITHOLOGY COLLECTIONS of the ROM is not on display because of its fragility. Now extinct, the species belonged to the same family that includes the common puffin and the razorbill. The great auk was the original penguin. What we know today as penguins are birds that were mistaken for the great auk.

PHOTOGRAPH COURTESY OF THE ORNITHOLOGY DEPARTMENT, ROYAL ONTARIO MUSEUM

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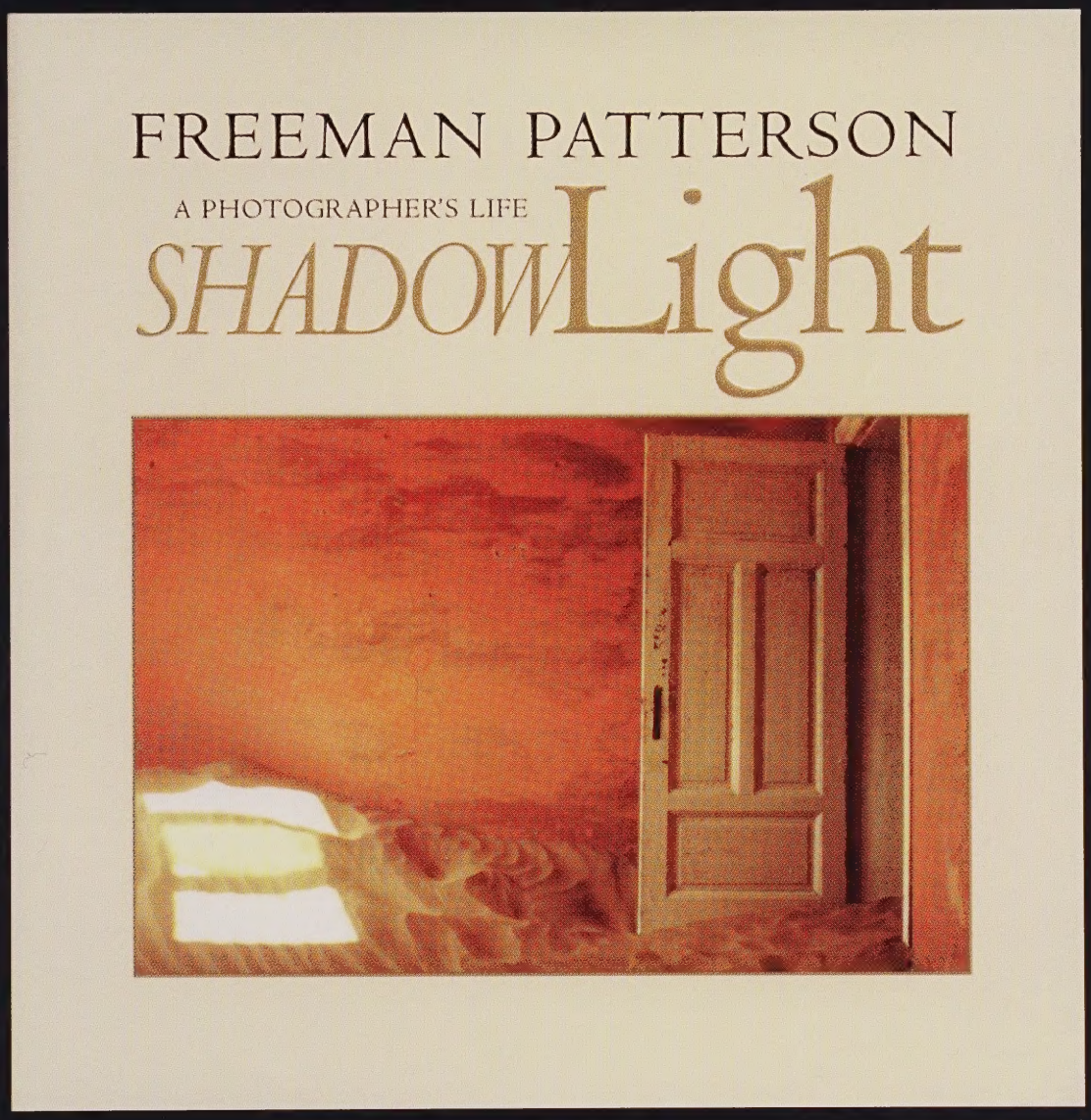

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